Arizona Department of Corrections Rehabilitation and Reentry

Clinical Practice Guidelines Manual

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Grant Phillips MD, Medical Director — Date: 1/20/2023

Larry Gann, Assistant Director for Medical Services — Date: 1/20/2023

Clinical Practice Guidelines Manual

INTRODUCTION

Introduction

Arizona Department of Corrections, Rehabilitation and Reentry (ADCRR) has developed clinical practice guidelines (CPGs) to serve as a framework to support evidence-based clinical decisions and best practices. CPGs are intended to provide guidance for standard practices for a variety of medical and mental health conditions. The guidelines serve as a reference for health staff on the frequency of health visits, approach to treatment, preventive health interventions, patient education, and the monitoring of conditions through diagnostic testing.

While CPGs provide the framework for expectations based on evidence-based practices and guidelines and expectations set forth by accrediting organizations, they are not designed to provide comprehensive information regarding the management of specific conditions. Additionally, the ADCRR CPGs don't cover all of the conditions that health staff may encounter while caring for the inmate-patient population. Health professionals should practice within the scope of their education, training, and licensure, and should seek out additional information when necessary. Sources of information may include obtaining guidance from a supervising physician, as well as published and online resources.

Contract Healthcare Provider (CHP) staff members are responsible for following the guidelines as set forth by ADCRR. The CPGs are available online for health staff to review at https://corrections.az.gov/medical-services. Questions should be directed to the facility health administrator (FHA) or the site medical director (SMD). Clinical performance measures may be developed from CPGs and used for quality improvement initiatives.

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Anticoagulation

Introduction

Therapeutic anticoagulation is utilized in the treatment and prevention of venous thromboembolism (VTE) and the prevention of stroke in patients with atrial fibrillation. Medications include warfarin, apixaban (Eliquis), dabigatran (Pradaxa), edoxaban (Savaysa), enoxaparin (Lovenox), and rivoroxaban (Xarelto). The goal of anticoagulation treatment is to optimize the therapeutic benefits while minimizing the risk of bleeding events. Medication selection is determined by clinical indications, patient-specific factors, and the Correctional Healthcare Provider (CHP) formulary.

Low Molecular Weight Heparins (LMWH)

The LMWHs have a distinct advantage over unfractionated heparin in that they have a more predictable anticoagulant effect. Enoxaparin (Lovenox) is the most commonly used LMWH and is administered via subcutaneous injection.

Monitoring: Patients treated with an LMWH should be monitored for heparin-induced thrombocytopenia if there has been no exposure to heparin products in the past. Patients with renal failure should be managed in expert consultation. As LMWHs are renally cleared, their half-life is lengthened in individuals with renal failure. For this reason, LMWHs are contraindicated in hemodialysis patients.

Dosing of LMWHs for treatment is based on actual body weight. In morbidly obese patients (BMI $\geq$ 40 kg/m^2), the prophylactic dose may be increased by 30 percent in some indications.

Warfarin

Warfarin is an anticoagulant that acts by inhibiting vitamin K-dependent coagulation factors (II, VII, IX, and X). This medication must be individualized and carefully monitored. Warfarin has a narrow therapeutic index and excessive or insufficient anticoagulation can have serious and potentially life-threatening consequences. Routine clinical evaluation of the patient, in addition to laboratory monitoring using the prothrombin time (PT) and international normalized ratio (INR), is essential for patient care.

The patient's compliance with the therapy is crucial and requires that he or she understands the medication regimen, the monitoring process, and possible side effects. Patients should receive counseling and education to promote adherence to the medication regimen; furthermore, they should be monitored to assess compliance.

Pregnancy: Since warfarin crosses the placenta, and causes teratogenicity and fetal bleeding, it is contraindicated during pregnancy. A LMWH is the preferred anticoagulant for most pregnant women. LMWH does not cross the placenta and does not cause fetal anticoagulation.

Target INR: The optimal target range for the INR is not the same for all indications. Clinicians must consider the risks and benefits of anticoagulation therapy based upon the individual's risk for thrombosis if not treated, weighed against the risk of bleeding if treated. For most conditions, the target INR should be between 2.0 and 3.0. For those at high risk for thrombosis and/or embolism target INR should be between 2.5 and 3.5.

Monitoring of Warfarin: See the Correctional Health Considerations section.

Warfarin should be started concurrently with unfractionated heparin or LMWH in patients with acute deep venous thrombosis and/or pulmonary embolism. Continue for at least 5 days and until the INR is 2.0 to 3.0.

Dosing of Warfarin:

- Warfarin should be administered during evening medication administration
- Warfarin therapy may be started using 5 mg daily
- Caution is needed in the elderly and those with liver disease and/or at high risk of bleeding (start with 2.5 mg)
- Measure PT/INR before starting therapy
- A suggested protocol is to give 5 mg warfarin on four days and measure the INR on day 5. The final maintenance dose is determined by using the accompanying table

Adjustment of Warfarin:

Adjustment of warfarin dose (INR < 6.0)

(Ebell MH. Evidence-based initiation of warfarin (Coumadin). Am Fam Physician 2005; 71:763–5)

For target INR of 2.0 to 3.0, no bleeding:*

INR	< 1.5	1.5 to 1.9	2.0 to 3.0	3.1 to 3.9	4.0 to 4.9
Adjustment	Increase dose 10 to 20%; consider extra dose	Increase dose 5 to 10%†	No change	Decrease dose 5 to 10%†	Hold for 0 to 1 day then decrease dose 10%
Next INR	4 to 8 days	7 to 14 days	No. of consecutive in-range INRs x 1 wk (max: 4 wks)‡	7 to 14 days	4 to 8 days

For target INR of 2.5 to 3.5, no bleeding:*

INR	< 1.5	1.5 to 2.4	2.5 to 3.5	3.6 to 4.5	4.5 to 6.0
Adjustment	Increase dose 10 to 20%; consider extra dose	Increase dose 5 to 10%§	No change	Decrease dose 5 to 10%; consider holding one dose§	Hold for 1 to 2 days then decrease dose 5 to 15%
Next INR	4 to 8 days	7 to 14 days	No. of consecutive in-range INRs x 1 wk (max: 4 wks)‡	7 to 14 days	2 to 8 days

Adjustment of warfarin (INR > 6.0)

(Ebell MH) Evidence-based initiation of warfarin (Coumadin).

Am Fam Physician 2005; 71:763–5)

INR 5.0 to 8.9, no significant bleeding:

- Omit 1 to 2 doses
- Reduce dose 10 to 20 percent
- Monitor frequently
- Consider sending to Emergency Department or Infirmary

INR≥ 9.0, no significant bleeding:

- Hold warfarin therapy
- Give vitamin K, 5 to 10 mg orally
- Monitor frequently
- Resume at lower dose when INR is therapeutic

- Admit to Infirmary or send to Emergency Department

Serious bleeding, any INR:

- Hold warfarin
- Send to Emergency Department

Vitamin K:

Supratherapeutic anticoagulation may occur with patients taking warfarin. Vitamin K may be used to reverse the effects of warfarin; however, vitamin K can lead to warfarin resistance and subsequently, to an increased risk of thromboembolism.

In an outpatient clinic setting, oral vitamin K is the preferred route of administration. One dose of oral vitamin K should return a prolonged INR value to the therapeutic or near-therapeutic range within 1 day.

Novel Oral Anticoagulants (NOACs)

Direct Thrombin Inhibitors (DTIs):

Dabigatran (Pradaxa) exhibits its anticoagulant effect through direct inhibition of free and fibrin-bound thrombin.

- Thromboembolism/Stroke prophylaxis: 150mg PO bid
- Deep vein thrombosis/pulmonary embolism (DVT/PE) treatment: 150mg PO bid

Selective Factor Xa Inhibitors

Selective factor Xa inhibitors include apixaban (Eliquis), edoxaban (Savaysa), rivaroxaban (Xarelto). They inactivate circulating and clot-bound factor Xa.

- Apixaban (Eliquis)
    - Thromboembolism/Stroke prophylaxis: 5mg PO bid
    - DVT/PE treatment: 5mg PO bid
- Edoxaban (Savaysa)
    - Thromboembolism/Stroke prophylaxis: 60mg PO qday
    - DVT/PE treatment:
        - (<60kg) Dose: 30mg PO qday
        - (>60kg) Dose: 60mg PO qday
- Rivoroxaban (Xarelto)
    - Thromboembolism/Stroke prophylaxis: 20mg PO qday
    - DVT/PE treatment: 20mg po qday

Correctional Health Considerations

- Housing: All patients on anticoagulation medication should have a bottom bunk order.
- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.

- Diagnostic testing:
    - Complete blood count (CBC) with differential every 6 months to monitor for any decrease in hemoglobin suggestive of bleed
    - Comprehensive metabolic panel (CMP) every 6 months to monitor liver and kidney function for any need in adjustment of medication doses
    - Onsite INR weekly for patients on warfarin until 2 consecutive INR's are within goal treatment range. Then monthly while on warfarin.
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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Coronary Artery Disease

Introduction

Coronary artery disease, also known as ischemic heart disease, refers to a condition in which there is an inadequate supply of blood to the heart muscle. It is usually the result of atherosclerosis. Symptoms may include angina pectoris, atypical chest pain, dyspnea on exertion, or silent ischemia (especially in patients with diabetes mellitus). The goals of care include diagnosing the condition, determining the extent of disease, relieving symptoms, and preventing future cardiac events.

Determining Disease Severity

Diagnostic testing can help to determine the extent of coronary artery disease, which will then identify the therapeutic approach.

- Assessing severity of coronary disease can be done through stress testing, cardiac imaging, and angiography:
  - Stress testing- usually done with an exercise electrocardiogram (EKG), exercise with imaging, or pharmacologic stress testing with imaging
  - Computed tomography angiogram (CTA) is a type of noninvasive imaging and is used commonly in patients who are not candidate for exercise or pharmacologic stress testing
  - Invasive coronary angiography may be used to determine disease severity and may be used in patient with atypical symptoms or if stress testing findings are equivocal
- Measurement of left ventricular systolic function is generally evaluated with a transthoracic echocardiogram for the following reasons:
  - Make determinations on the type of therapy (medication, intervention, or surgery)
  - Make recommendations on activity level
  - Identify patients who have had a silent infarction
  - Evaluate valvular function
  - Indications include prior myocardial infarction, evidence of heart failure, heart murmur, ventricular arrhythmias

Candidates for Angiography and Revascularization

There are two primary indications:

- Angina that significantly interferes with a patient's activities of daily living despite maximal medical therapy.
- Clinical characteristics and results of noninvasive testing suggest a high likelihood of severe ischemic heart disease.

Additionally, patients with an impaired ejection fraction of <50 percent and moderate risk criteria on noninvasive testing with demonstrable ischemia may benefit from coronary angiography.

Antianginal Therapy

There are three main classes of medications used in the management of angina pectoris:

- Beta blockers- first line therapy to reduce anginal episodes and improve exercise tolerance. Beta blockers reduce anginal symptoms by decreasing heart rate and contractility. Beta blockers are also proven to prevent reinfarction and improve survival in patients who have a history of prior myocardial infarction.
  - All types of beta blockers appear to be equally effective

- Calcium channel blockers- can be used also as an alternative to beta blockers in patients who cannot tolerate beta blockers. They cause vasodilation and reduce contractility.
    - Long-acting diltiazem or verapamil or a second-generation dihydropyridine (amlodipine or felodipine) are preferred.
- Long-acting nitrates- can be used as monotherapy as an alternative to beta blockers. In patients with exertional angina, nitrates improve exercise tolerance and time to onset of angina.
    - Short-acting nitrates, usually sublingual, are used as first-line therapy for the treatment of acute anginal symptoms.

Preventing Disease Progression

All patients with coronary artery disease should receive education and counseling about medication compliance, blood pressure control, maintaining an optimal weight, tobacco cessation, and regular exercise. In patients with type 2 diabetes mellitus, glycemic control is important in coronary artery disease risk reduction. Additionally, several medical therapies can reduce the risk of cardiovascular events and disease progression in all patients with coronary artery disease.

- Antiplatelet therapy- all patients should be treated with low-dose aspirin, unless there is a contraindication. Clopidogrel is an alternative for those who are allergic to aspirin.
- Lipid-lowering therapy- all patients with coronary artery disease should be treated with high-intensity doses of a statin, regardless of baseline low-density lipoprotein (LDL-C) cholesterol.
- ACE inhibitors or ARBs in select patients- Angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) have known benefits in patients with coronary artery disease who also have hypertension, diabetes mellitus, decreased left ventricular ejection fraction (EF <40 percent), or chronic kidney disease.

Correctional Health Considerations

- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- Because of the severity of complications from this disease process, follow up intervals of more than 90 days are not clinically justifiable.
- Patients with known coronary artery disease should be referred to a cardiologist at least yearly.
- Diagnostic testing:
    - Baseline testing: EKG, comprehensive metabolic panel (CMP), complete blood count (CBC), lipid panel, thyroid-stimulating hormone (TSH)
    - Follow up testing: CMP, CBC, lipid panel at least twice yearly
- Addition of ACE inhibitors or diuretics, or changes in doses, should be followed up with a CMP at or prior to the next chronic care visit, since these medications may lead to significant changes in electrolytes or kidney function.
- Medication for cardiovascular diseases may be ordered as KOP (Keep on Person) if the patient is reliable to take the medication as prescribed and KOP is appropriate to the housing unit.
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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Stable Coronary Artery Disease: Treatment | AAFP. Accessed November 12, 2022

Hyperlipidemia

Introduction

Lowering low-density lipoprotein cholesterol (LDL-C) can reduce the risk of atherosclerotic cardiovascular disease (ASCVD) in people without known cardiovascular disease (CVD). This is termed primary prevention and can be approached through lifestyle changes or pharmacologic treatment.

Secondary prevention is the treatment of patients with known CVD to reduce the risk of subsequent events. The interventions are aimed at known modifiable risk factors for CVD events such as smoking, hypertension, diabetes, and elevated levels of LDL-C. LDL-C lowering has been shown in large clinical trials to reduce the risk of CVD events and, in some populations, to reduce all-cause mortality.

The decision about whether to treat elevated LDL-C levels with pharmacologic treatment is based upon a patient's estimated 10-year CVD risk, which includes their LDL-C levels.

Although triglycerides levels are commonly high in patients with CVD, the specific role of elevated triglycerides in atherogenesis remains controversial because it often occurs in conjunction with the triad of obesity, hypertension, and diabetes mellitus. Normal values are below 150 mg/dL and are associated with reduced cardiovascular risk, even after a major reduction of the LDL-C. An elevated triglyceride level (>200 mg/dL) is of particular concern when combined with high blood LDL-C or low blood high-density lipoprotein cholesterol (HDL-C) values.

CVD Risk Assessment

A CVD risk assessment includes a measurement of total cholesterol, HDL-C, and LDL-C. A patient's CVD risk is determined using a tool that calculates a patient's 10-year risk of CVD, based upon their baseline LDL-C and other risk factors like hypertension, smoking, and diabetes.

This is the recommended tool for calculating the risk that ASCVD will occur over the next 10 years.

- ASCVD Risk Estimator + (acc.org)

The calculator includes the following factors: age, gender, race, blood pressure, total cholesterol, HDL-C, LDL-C, history of diabetes, smoking status, hypertension treatment, statin therapy, and aspirin therapy.

A patient's risk categories are as follows:

- Low – <5 percent
- Intermediate – 5 to ≤10 percent
- High – >10 percent
- Very High – ≥20 percent

Lifestyle Modification

All patients with elevated LDL-C levels should be educated about implementation of a healthy diet, physical activity, tobacco cessation, and weight reduction (when indicated).

Indications for Statin Therapy

The 2018 guidelines published by the American College of Cardiology and the American Heart Association (ACC/AHA) emphasize the importance of LDL-C in defining treatment groups who would benefit from statin therapy. There is currently no evidence that lowering LDL-C to a specific goal is beneficial. Shared decision making between the provider and patient should take place.

Lipid-lowering statin therapy lowers the *relative* CVD risk by approximately 30 percent regardless of baseline LDL-C. However, patients with a higher CVD risk would have a greater *absolute* risk reduction by starting on statin therapy, compared with patients who have a lower CVD risk.

Treatment based on LDL-C level:

- Patients with an LDL-C ≥190 mg/dL
    - Generally high-dose statin therapy is recommended
- LDL-C level ≤ 190 mg/dL
    - Statin therapy is guided by the patient's 10-year estimated CVD risk group (low, medium, or high)

Treatment based on 10-year CVD risk:

- High (>10 percent 10-year) CVD risk
    - Statin therapy is recommended if LDL-C is >100mg/dL and the predicted 10-year CVD risk is >10 percent

Repeat LDL-C and CVD Risk Assessment

Following the initiation of statin therapy, the LDL-C should be measured in six to eight weeks to assess LDL-C lowering and statin adherence. For most patients who have been started on moderate-dose statin therapy, the statin dose does not need to be increased.

Most benefits from statin therapy occur with moderate-dose therapy. The increase in benefits is small when going from moderate-to-high dose statin. There is little evidence to suggest that increasing the dose provides a benefit that justifies more aggressive LDL-C lowering.

In patients who have no compliance issues, routine LDL-C monitoring does not need to occur. A lipid panel should then be repeated every 12 months.

Special Populations

Chronic Liver Disease

- Statins should be used cautiously in patients with high cardiovascular risk with chronic liver disease.
- Statins should be started at low doses and aminotransferases should be monitored closely.
- Statins are contraindicated in patients with decompensated cirrhosis or acute liver failure.

Pregnancy

- Statins are contraindicated in pregnant patients.
- Women of childbearing age who take statins should be cautioned about the risk of possible harms to a fetus.

Human Immunodeficiency Virus (HIV) Patients

- Patients should be monitored for lipid abnormalities.

Psychotropic Medications

- Patients on certain psychotropic medications should be monitored for lipid abnormalities.

- Details can be found in the Laboratory Monitoring of Commonly Prescribed Medications Clinical Practice Guidelines

Elderly Patients (>75 years old)

- The decision to lower LDL-C in adults 75 years of age and older should be individualized and should occur after a full discussion of the potential health benefits and risks.
- Shared decision making is important in this setting.

Hypertriglyceridemia

Hypertriglyceridemia occurs in approximately 25 percent of adults in the United States and is categorized as follows:

- Normal: <150 mg/dL
- Moderate hypertriglyceridemia: 150 to 499 mg/dL
- Moderate to severe hypertriglyceridemia: 500 to 999 mg/dL
- Severe hypertriglyceridemia: >1000 mg/dL

Cardiovascular risk begins to increase significantly above a blood triglyceride level of 150 mg/dL. It is more common for a patient to have an elevated triglyceride level in association with an elevated LDL-C. In this situation, the patient has mixed hyperlipidemia.

The goals of triglyceride lowering are to prevent episodes of pancreatitis and to (potentially) lower the risk of adverse ASCVD events. The adoption of healthy lifestyle behaviors for all patients with hypertriglyceridemia is recommended.

The use of triglyceride-lowering therapies is initiated in some individuals, mainly to lower the risk of pancreatitis. There is not strong evidence that triglyceride-lowering therapies reduce the risk of CVD events in statin-treated patients.

Hypertriglyceridemia is often caused by or worsened by potentially correctable disorders. Therefore, nonpharmacologic interventions such as weight loss in obese patients, aerobic exercise, avoidance of concentrated sugars and alcohol are recommended. In addition, focus on strict glycemic control in diabetics should take place. For patients with severe hypertriglyceridemia, treatment with stringent dietary fat restriction is recommended.

In patients who meet criteria for statin use based on their LDL-C levels or 10-year CVD risk, statin therapy is recommended. Additional medications may include marine omega-3 fatty acids or fibrates, depending on ASCVD risk and the degree of triglyceride elevation.

Correctional Health Considerations

- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)

- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.

- Diagnostic testing:
    - Baseline testing: Comprehensive metabolic panel (CMP), Lipid panel, electrocardiogram (EKG)
    - Follow up testing: CMP, Lipid panel 6-8 weeks after initiating statin therapy, then CMP and lipid panel annually
- The 10-year ASCVD risk should be calculated:
    - ASCVD Risk Estimator + (acc.org)
- Medication for hyperlipidemia may be ordered as KOP (Keep on Person) if the patient is reliable to take the medication as prescribed and KOP is appropriate to the housing unit.
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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Hypertension

Introduction

The prevalence of hypertension worldwide is high, and the treatment of hypertension is the most common reason for the use of chronic prescription medications. Approximately 50 percent of hypertensive individuals do not have adequate blood pressure control.

Classification of Hypertension

According to the 2017 recommendations by the American College of Cardiology/American Heart Association (ACC/AHA), hypertension parameters are as follows:

- Normal blood pressure – Systolic <120 mmHg and diastolic <80 mmHg
- Elevated blood pressure – Systolic 120 to 129 mmHg and diastolic <80 mmHg
- Hypertension:
  - Stage 1 – Systolic 130 to 139 mmHg or diastolic 80 to 89 mmHg
  - Stage 2 – Systolic at least 140 mmHg or diastolic at least 90 mmHg
- If there is a disparity in category between the systolic and diastolic pressures, the higher value determines the stage.

Blood Pressure Measurement

Proper technique in the measurement of blood pressure is important when identifying patients with elevated blood pressure.

- The patient should be sitting in a chair with their feet on the floor and back supported for >5 minutes.
- Neither the patient nor the observer should talk during the measurement.
- Remove clothing that is covering the location of cuff placement.
- The patient's arm should be supported and the correct cuff size should be used.
- Use an average of 2 or more readings on 2 or more occasions to estimate the individual's blood pressure.

Types of Hypertension

- Primary (essential) hypertension is responsible for 90-95 percent of cases of hypertension.
  - It is likely the result of numerous genetic and environmental factors that have an effect of cardiovascular and kidney function.
  - Possible etiological factors include age, obesity, family history, race, reduced nephron number, high-sodium diet, excessive alcohol consumption, and physical inactivity.
- Secondary hypertension occurs in 5-10 percent of cases of hypertension.
  - Underlying causes include medications (e.g., nonsteroidal anti-inflammatories and corticosteroids), illicit drugs, primary kidney disease, primary aldosteronism, renovascular hypertension, obstructive sleep apnea, pheochromocytoma, Cushing's syndrome, endocrine disorders (e.g., hyperthyroidism and hyperparathyroidism), and coarctation of the aorta.
  - Testing for secondary hypertension is not recommended for all patients with primary hypertension but may be considered in patients with unusual presentations of hypertension, drug-resistant hypertension, or clinical clues for a specific cause of hypertension.

Complications of Hypertension

Hypertension is the most prevalent modifiable risk factor for premature cardiovascular disease, ahead of cigarette smoking, dyslipidemia, and diabetes. Untreated hypertension can lead to the following complications:

- Left ventricular hypertrophy (LVH)
- Heart failure
- Ischemic stroke
- Intracerebral hemorrhage
- Ischemic heart disease
- Chronic kidney disease

Diagnosis

- Adults with normal blood pressure readings should have their blood pressure checked every year.
- The diagnosis of hypertension should be based on the average of two or more blood pressure readings at each of two or more visits.
    - Hypertension is confirmed with a mean blood pressure ≥130/80 mmHg
- A diagnosis can be made without further confirmatory readings if the following occur:
    - Hypertensive urgency or emergency (i.e., blood pressure ≥180/120 mmHg)
    - Initial blood pressure ≥160/100 mmHg with end-organ damage (e.g., LVH, ischemic cardiovascular disease)

Evaluation

A hypertension evaluation should be performed to determine:

- The presence or extent of any end-organ damage
- Existing cardiovascular or kidney disease
- The presence of other cardiovascular risk factors
- Modifiable lifestyle factors (e.g., high salt diet, smoking, substance use)
- Medications that may contribute to elevated blood pressure

A thorough history and physician examination should be conducted. A fundoscopic examination should be conducted to evaluate for hypertensive retinopathy.

Diagnostic testing should be conducted as outlined in the Correctional Health Considerations section.

Treatment

Lifestyle modification is recommended for all patients with elevated blood pressure.

Nonpharmacologic interventions include:

- Dietary salt restriction
- Weight loss
- Exercise
- Tobacco cessation

The initiation of pharmacologic treatment should take part with shared decision making between the provider and the patient. Treatment with antihypertensive medication has been shown to decrease the incidence of heart failure, stroke, and myocardial infarction.

Based on the recommendations made by the 2017 ACC/AHA guidelines, pharmacologic treatment should be initiated in the following patients:

- Patients with an average blood pressure ≥140/90 mmHg
- Patients with an average blood pressure ≥130/80 mmHg with one or more of the following features:
    - Established cardiovascular disease (e.g., ischemic heart disease, heart failure, carotid disease, previous stroke, or peripheral arterial disease)
    - Type 2 diabetes mellitus
    - Chronic kidney disease
    - Age 65 years or older
    - An estimated 10-year risk of atherosclerotic cardiovascular disease (ASCVD) of at least 10 percent

A shared decision-making approach to initiating or continuing antihypertensive treatment should occur in the following situations:

- Stage 1 hypertension (blood pressure 130 to 139 mmHg systolic and 80 to 89 mmHg diastolic) in a patient over age 75.
- Stage 1 hypertension (blood pressure 130 to 139 mmHg systolic and 80 to 89 mmHg diastolic) with a 10-year risk of ASCVD of at least 10 percent, but no clinical cardiovascular disease, diabetes, or chronic kidney disease

Pharmacologic Treatment

The degree of blood pressure reduction, rather than the choice of medication, is the major determinant of cardiovascular risk reduction in the treatment of hypertension.

Initial therapy is recommended with one of the following four classes of medications, based on the recommendations from the 2017 ACC/AHA guidelines:

- Thiazide-like or thiazide-type diuretics
- Long-acting calcium channel blockers (e.g., amlodipine)
- Angiotensin-converting enzyme (ACE) inhibitors
- Angiotensin II receptor blockers (ARBs)

An ACE inhibitor or ARB is recommended as initial monotherapy in patients with diabetic nephropathy or nondiabetic kidney disease.

Beta blockers are no longer recommended in the absence of ischemic heart disease or heart failure with decreased ejection fraction.

Combination therapy will generally be needed when the baseline systolic blood pressure is 15 mmHg or more above a patient's goal.

Blood Pressure Goals

These goals are consistent with recommendations by the 2017 ACC/AHA guidelines:

- In most patients who qualify for antihypertensive pharmacologic therapy, the goal blood pressure is <130/80 mmHg.
- A less aggressive goal of <140/90 mmHg may be appropriate for the following groups:
    - Patients with labile blood pressures or orthostatic hypotension
    - Patients with side effects to multiple antihypertensive medications
    - Patients 75 years or older with a high burden of comorbidity or low diastolic blood pressure readings (<55 mmHg)

Since there is disagreement between various guidelines, a blood pressure goal of <140/90 mmHg may be appropriate, based on an informed discussion between the provider and patient.

Correctional Health Considerations

- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Blood pressure checks may be ordered when this information will facilitate clinical decision-making. These checks should not be ordered more frequently than at twice weekly intervals unless the patient is housed in a higher level of care unit and/or the patient has had a recent significant change in health status.
    - All blood pressure logs need to be reviewed by a provider at the completion of the ordered time frame which should not exceed four weeks.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.
- Diagnostic testing:
    - Baseline testing: electrocardiogram (EKG), Comprehensive metabolic panel (CMP), Lipid panel, thyroid-stimulating hormone (TSH), Urinalysis
    - Follow up testing: CMP, Lipid panel at least once yearly
- Optometry consultation for routine retinopathy screening once yearly
- The 10-year ASCVD risk should be calculated:
    - ASCVD Risk Estimator + (acc.org)
- Addition of ACE inhibitors or diuretics, or changes in doses, should be followed up with a CMP at or prior to the next chronic care visit, since these medications may lead to significant changes in electrolytes or kidney function.
- Medication for hypertension may be ordered as KOP (Keep on Person) if the patient is reliable to take the medication as prescribed and KOP is appropriate to the housing unit.
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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Chronic Hepatitis C

Introduction

Hepatitis C virus (HCV) can cause both acute and chronic hepatitis. The acute process is self-limited, rarely causes hepatic failure, and usually leads to chronic infection. Chronic HCV infection frequently follows a progressive course over many years and can ultimately result in cirrhosis, hepatocellular carcinoma, and the need for liver transplantation.

The goal of treatment HCV-infected persons is to reduce all-cause mortality and liver-related health adverse consequences, including end-stage liver disease and hepatocellular carcinoma, by the achievement of virologic cure as evidenced by a sustained virologic response.

In the correctional environment, patients with a reactive HCV antibody (Ab) test were likely previously exposed to HCV by risky behaviors which resulted in exposure to blood, commonly through intravenous drug use or tattooing. Patients who were exposed to HCV develop persistent HCV viremia 70-85 percent of the time, while 15-30 percent of patients will resolve the infection on their own.

Patients with HCV-Ab and HCV-RNA (viral load) detectable in serum after 6-months have chronic HCV. Approximately 25 percent or more of chronic HCV patients develop progressive hepatic fibrosis as a result of chronic hepatic inflammation and may progress clinically to cirrhosis or hepatocellular cancer.

A small number of chronic HCV patients may also develop extrahepatic symptoms, including cryoglobulin-mediated vasculitis, causing skin lesions and renal failure, or a variety of other extrahepatic manifestations including adult onset diabetes mellitus, hyper- or hypo-thyroidism, other skin manifestations, or non-Hodgkin's lymphoma.

Identification

- An anti-HCV antibody test should be offered to all new inmates during the initial intake process through opt-out screening.
- Additionally, anti-HCV antibody testing should be offered to existing inmates who request HCV testing, have risk factors for chronic HCV, or have liver disease and whose HCV status is unknown.
- Patients who test positive for HCV-Ab should have a reflex serum HCV-RNA quantification (viral load) test done.
    - A provider visit shall be scheduled to discuss the test results.
    - A repeat HCV-RNA is scheduled 6 months later to confirm chronic HCV.
- Patients with HCV-Ab and persistent viral load detection for >6 months confirms chronic HCV.
    - These patients should have a flag placed in their health record identifying chronic HCV and be scheduled with a provider.

Evaluation – Initial

- Patients with HCV-Ab and detectable HCV-RNA (viral load) for greater than 6 months should receive further evaluation and staging of chronic HCV.
- The patient is enrolled in chronic care and a chronic care flag is added to their health record.
- Laboratory monitoring: See the Correctional Health Considerations section below.

- Persons with current HCV infection should receive education aimed at reducing liver disease progression and preventing HCV transmission.
- Education should include guidance on abstinence from alcohol and precautions regarding hepatotoxic drugs (e.g., acetaminophen).
- Patients should be provided with education about how to avoid HCV transmission to others (e.g., needle sharing and tattooing).

Assessment of the Liver

- The principal consequence of chronic HCV is inflammation of the liver which results in scarring or "fibrosis" and progression to cirrhosis. The amount of scarring is usually measured on the METAVIR scale:
    - F-0: inflammation, but no fibrosis
    - F-1: mild fibrosis
    - F-2: moderate fibrosis
    - F-3: severe fibrosis
    - F-4: cirrhosis
- The fibrosis scoring test (e.g., Fibrosure) should be done following confirmation of a diagnosis of chronic HCV (i.e., after 2 positive HCV-RNA viral loads performed >6 months apart).
- Liver imaging: See the Correctional Health Considerations section below.

Monitoring Candidates for Treatment

See the Correctional Health Considerations section below for recommendations on visit frequency and patient monitoring.

Treatment Recommendations

Patients should be involved in their treatment through shared decision-making. Providers should seek consultation with a supervising physician who is experienced in the treatment of chronic HCV. In patients who are co-infected with hepatitis B, co-management with a hepatologist is highly recommended, due to the risk for HBV reactivation during or after treatment with HCV direct-acting antiviral medication. Treatment of HCV patients with decompensated cirrhosis should be managed in consultation with a hepatologist.

Treatment Failure

Treatment failure is defined as detectable HCV viral load 12 weeks following completion of therapy.

- In the case of treatment failure, the health record should be reviewed for non-adherence, system failures in drug dispensing, possible drug-drug interactions, and the patient interviewed for illicit drug use and the ingestion of other acid-lowering medications or supplements.
- If no interfering risk factors are identified, the possibility of viral mutation causing drug resistance should be considered. Consultation with a physician who is experienced in the treatment of chronic HCV should be undertaken.

Monitoring During Treatment

The patient should have an outpatient clinic visit at 2-4 weeks after starting therapy in order to review adherence to the prescribed regimen and assess for side effects and the need for treatment modification.

- See the Correctional Health Considerations section below for diagnostic testing recommendations.

Monitoring After Treatment

- A post-treatment quantitative HCV-RNA assessment is drawn at 12 weeks after completion of treatment; and if HCV is undetectable, that defines a sustained viral response (SVR).
- See the Correctional Health Considerations section below for diagnostic testing recommendations.
- The patient's chronic care flag should be changed to indicate that their HCV has been treated.
- A patient who sustains SVR (F0, F1, F2) may be removed from chronic care monitoring.

- Patients with severe fibrosis (F3) or cirrhosis (F4) should continue to be managed as a chronic care condition due to chronic liver disease.
    - The patient's problem list should be updated to indicate severe fibrosis (F3) or cirrhosis (F4), as applicable.

Special Circumstances

- Continuation of outside therapy
    - If the patient is incarcerated while already undergoing Hepatitis C treatment:
        - Patient's health records are requested
        - Patient is continued on current treatment regimen while incarcerated
- Pregnancy
    - Treatment of HCV should be postponed until after delivery
- Reinfection with HCV after treatment
    - Patients who are reinfected with HCV and develop chronic HCV may be considered for repeat treatment, based upon established criteria that apply to all HCV patients.
- Chronic liver disease (F3 or F4): Refer to the Chronic Liver Disease Clinical Practice Guidelines

Practice Pearls

- A positive urine drug screen does not disqualify patients from HCV treatment.
- Do not repeat HCV Ab testing in positive patients.
    - Once a patient tests positive, they will remain positive.
- If a patient with a positive HCV Ab and an UNDETECTABLE HCV- RNA (viral load), the HCV-RNA should be repeated in 6 months to ensure that it remains undetectable.
    - There is no indication to repeat HCV-RNA testing in patients with 2 undetectable tests performed 6 months apart, unless there is a concern about reinfection.
- Patients with undetectable HCV-RNA tests may be unenrolled from the HCV chronic care program.

Correctional Health Considerations

- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
    - Chronic HCV patients should have chronic care flags added to reflect their treatment status.
    - A cirrhosis chronic care flag should be added for patients with severe fibrosis (F3) or cirrhosis (F4) and appropriate disease-specific follow up should take place, regardless of the patient's hepatitis C treatment status.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.
- Diagnostic testing:
    - Baseline testing: Comprehensive metabolic panel (CMP), complete blood count (CBC), prothrombin time/international normalized ratio (PT/INR), HCV RNA (viral load), and abdominal ultrasound
    - Additional baseline testing includes screening for, human immunodeficiency virus (HIV), RPR (rapid plasma reagin), hepatitis A, and hepatitis B if not already done
    - Follow up testing: CMP, CBC, and PT/INR
    - Pretreatment testing: HCV RNA and HCV genotype (prior to planned treatment initiation)
    - Annual testing: Fibrosure for risk stratification (do not repeat if prior testing showed F3 or F4)
    - Ultrasound every 6-months for patients with F3/F4 status

- Testing during treatment:
    - CMP, CBC, and HCV RNA after 4 weeks of treatment
- Testing after treatment
    - CMP, CBC, HCV RNA 12 weeks after completion of treatment
- Medication for HCV may be ordered as KOP (Keep on Person) if the patient is reliable to take the medication as prescribed and KOP is appropriate to the housing unit.
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.
- Discharge planning should occur for patients who will be released from custody to ensure the patient receives their entire course of treatment.

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Human Immunodeficiency Virus (HIV)

Introduction

The goals of the evaluation of a patient with HIV are to assess the stage of HIV disease, determine the risk for other infections, identify comorbidities that are associated with HIV infection or relevant to its treatment, and to facilitate continuity or initiation of an antiretroviral regimen. In addition, patient education about the natural history and management of HIV infection, as well as preventing the transmission of HIV (e.g., safer sex and safer injection practices), should take place.

Inmates in jails and prisons across the United States are disproportionately affected by HIV. Compared with those who have not been incarcerated, individuals in jails and prisons have more risk factors that are associated with acquiring and transmitting HIV, including injection drug use, commercial sex work, untreated mental illness, and lower socioeconomic status.

Establishing the Diagnosis

Opt-out HIV testing is offered to all inmates during the intake process. Any patient with a confirmed positive test result should be scheduled with a provider for counseling and further evaluation.

History

A comprehensive medical history should be obtained during the initial visits with HIV-infected patients. Information obtained should include the duration of infection, presence of other medical and psychiatric conditions, substance use, and any current or prior treatment. Assessment of the patients' understanding of their illness is important. Documentation of a patient's risk behaviors, history of opportunistic infections, and knowledge of recent lab results should be obtained.

Medications- a complete antiretroviral treatment history should be obtained, including an assessment of medication adherence and any history of adverse reactions.

Immunization history- a complete immunization history should be obtained, including dates of pneumococcal vaccines, meningococcal vaccines, recombinant zoster, human papillomavirus (HPV) vaccination, tetanus toxoid, COVID-19 vaccine, and hepatitis A and B vaccines.

Physical Examination

A comprehensive physical exam should take place, including height and weight.

The following areas should be included: skin, body morphology (to identify fat atrophy or fat deposition), oral mucosa, lymph nodes, and neurological exam.

Screening for HPV-associated Neoplasia

HIV infection is associated with higher rates of HPV infection and higher rates of HPV-associated neoplasia.

Cervical cancer- cervical cancer screening should take place as part of an initial evaluation of all females with HIV.

Anal cancer- HIV infection is associated with higher rates of anal neoplasia in males and females, regardless of sexual orientation. Screening with an anal cytology test (anal Pap) is generally recommended for patients over age 30. Patients with abnormal anal Pap tests should be referred for high-resolution anoscopy and biopsy.

Evaluation for Antiretroviral Therapy

The goals of antiretroviral therapy (ART) are to prolong life and improve quality of life, improve or maintain immunologic function, suppress the HIV viral load, and prevent HIV transmission. ART has resulted in drastic reductions in morbidity and mortality from HIV.

ART is recommended in all HIV-infected patients and should be started as soon as possible after diagnosis. Patient education should take place, including the risks and benefits of treatment.

Patients who are being evaluated during the intake process and are currently on ART should be continued on their current regimen without delay. For patients with established HIV who are not currently on treatment, timely consultation with a physician experienced in the treatment of HIV patients should take place.

Ongoing monitoring of the patient at routine intervals should take place in order to assess therapeutic response, patient compliance, and to identify potential adverse events related to ART.

Prophylaxis of Opportunistic Infections

Primary prevention of opportunistic infections should be addressed in patients with CD4 cell counts <200 cells/microliter.

Correctional Health Considerations

- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- Because of the severity of complications in this disease process, follow up intervals of more than 90-days are not clinically justifiable
- Referral to HIV specialist at least once per year for further recommendations and clinical guidance
- Diagnostic testing:
    - Baseline testing: comprehensive metabolic panel (CMP), complete blood count (CBC) (if not already part of the CD4 analysis), lipid panel, CD4 cell count, HIV RNA viral load
    - Additional baseline testing includes screening for hepatitis A, B, and C, RPR (rapid plasma reagin), and gonorrhea and chlamydia testing (if not already done)
    - Follow up testing: CMP, CBC, CD4 cell count, HIV RNA viral load
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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Latent Tuberculosis Infection (LTBI)

Introduction

In a correctional setting, the identification of patients with active tuberculosis (TB) and latent TB is essential to prevent the spread of this disease. Factors that increase the risk for TB include high rates of homelessness, substance misuse, human immunodeficiency virus (HIV) infection, and crowded living conditions.

TB is a disease caused by Mycobacterium tuberculosis. Infection with Mycobacterium tuberculosis is spread by airborne droplets from patients with active respiratory disease. After the primary infection, TB can progress to active pulmonary disease or an infection outside of the lungs. In addition, TB may remain latent, or inactive, for part or all of the patient's life.

In most patients, Mycobacterium tuberculosis is initially contained by host defenses and the individual is asymptomatic and not contagious. However, some patients with latent infection may develop symptomatic active disease. Treatment of individuals with latent infection has the potential of reducing the risk of active disease by up to 90 percent, which has public health benefits.

Available tests for LTBI include the tuberculin skin test (TST) and interferon-gamma release assays (IGRAs). Both types of tests measure immune sensitization to mycobacterial protein antigens. There is no clear advantage to using one type of test over the other.

TB Control in Correctional Facilities

Effective TB prevention and control measures in correctional facilities include:

- Early identification of patients with TB infections at intake and periodically during incarceration
    - All inmates entering prison are screened for TB infection with a TST and an inquiry about symptoms of possible active TB during the intake process.
- Isolation and further evaluation of patients with a suspected active TB infection
- Reporting of suspected and confirmed TB cases to the local or state health department
    - Thorough contact investigations when a TB case has been identified.
- Treatment of TB disease and LTBI
- Comprehensive discharge planning

TST Interpretation

The positive skin test reaction is a measurement of induration in millimeters:

- ≥5 mm
    - HIV infection
    - Chest x-ray findings consistent with old TB
    - Immunosuppressed patients (e.g., chemotherapy, chronic steroids)
- ≥10 mm
    - Residents and employees of high-risk settings, including correctional facilities

Increased Risk of New Infection

Individuals with recent exposure include close and casual contacts of patients with untreated active respiratory TB. When a potential exposure incident is identified, then local or state public health authorities should be notified for guidance.

The risk of disease in the first two years following infection is 1 to 2 percent in individuals older than age 10.

Latent TB

LTBI refers to an asymptomatic, non-contagious infection with Mycobacterium tuberculosis. Latent TB carries a 5 to 10 percent lifetime risk of progressing to active disease.

- 50 percent of this risk occurs within the first two years after infection.
- High-risk groups include recent immigrants from high-incidence countries, healthcare professionals, persons living or working in institutional settings, injection drug users, contacts of active TB cases, and homeless persons.
- Risk factors for progression to active disease include an impaired immune system, recent exposure to tuberculosis, and chronic renal insufficiency requiring dialysis.
- The main limitation of tuberculin skin testing is the potential for false-positive results in patients who have received the bacillus Calmette-Guérin (BCG) vaccine.
- Interferon-gamma release assays (e.g., Quantiferon Gold) address these deficiencies but are limited by their cost and requirement for blood processing.
- Various treatment options for latent TB exist.
    - Consideration of the risk of disease and the risk of treatment should be made; some treatment regimens confer a higher risk of adverse events in patients older than age 50.
    - Consultation about specific treatment regimens should be provided by a physician who is experienced in treating LTBI.

Increased Risk of Reactivation

Reactivation refers to patients with LTBI who develop active TB and is divided into the following categories:

- High Risk (at least six times higher risk than healthy individuals)
    - HIV infection
    - Chemotherapy
    - Transplant patients
    - Lymphoma, leukemia, head and neck cancer
    - Tumer necrosis factor (TNF)-alpha inhibitors
- Moderate risk (three to six times higher risk than healthy individuals)
    - Diabetes mellitus
    - Chronic corticosteroids
- Slightly increased risk (1.5 to 3 times higher risk than healthy individuals)
    - Underweight
    - Cigarette smokers
    - Small granulomas on chest x-ray

Excluding Active TB

All individuals with a positive test for TB infection (positive TST or IGRA result) warrant evaluation to exclude active TB prior to initiation of treatment for LTBI. The evaluation includes clinical history, physical examination, and a chest x-ray.

Patients with positive symptomatology (cough >2 weeks' duration, fevers, night sweats, weight loss) and/or abnormal chest x-ray should be masked and moved to a respiratory isolation room. HIV-infected patients with active TB may be asymptomatic.

Three sputum specimens should be obtained via cough at least eight hours apart and include at least one early-morning specimen for acid-fast bacilli smear, mycobacterial culture, and nucleic acid amplification testing.

Correctional Health Considerations

- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
    - Chronic care flag for LTBI should be removed upon completion of treatment
    - Patients should have their problem list updated to reflect completion of LTBI treatment
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.
- Patients with LTBI who become symptomatic for possible active TB or who have an abnormal chest x-ray should be moved to respiratory isolation.
- In situations in which a patient is started on treatment and compliance may be questionable, the patient should be administered medications DOT (direct observed therapy).
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.
- Discharge planning should occur for patients who will be released from custody to ensure the patient receives their entire course of treatment.

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Tuberculosis: Common Questions and Answers | AAFP. Accessed December 10, 2022

Treatment Regimens for Latent TB Infection | TB | CDC. Accessed December 10, 2022

Chronic Liver Disease

Introduction

Cirrhosis is a late stage of progressive hepatic fibrosis and is generally considered irreversible in its advanced stages. Patients with cirrhosis are at risk for a number of complications and their life expectancy is markedly reduced.

Causes of Liver Disease

The most common causes of cirrhosis in the United States are hepatitis C, alcohol-associated liver disease, and nonalcohol-associated liver disease.

Other causes include hemochromatosis, autoimmune hepatitis, medications (e.g., methotrexate, isoniazid), and primary/secondary biliary cirrhosis, among many others.

Clinical Manifestations

Nonspecific symptoms may include anorexia, weight loss, weakness, or fatigue.

Specific signs and symptoms may include:

- Jaundice
- Pruritis
- Signs of upper gastrointestinal bleeding (e.g., hematemesis, melena, hematochezia)
- Abdominal distension from ascites
- Confusion from hepatic encephalopathy

Patients should be asked about fatigue, easy bruising, lower extremity edema, fever, weight loss, diarrhea, pruritis, increasing abdominal girth, or confusion.

Physical exam findings may include jaundice, spider angiomata, gynecomastia, ascites, hepatomegaly, splenomegaly, palmar erythema, digital clubbing, caput medusae (from dilated abdominal veins), and asterixis (“flapping tremor”).

Diagnostic Studies

Diagnostic study recommendations are outlined in the Correctional Health Considerations section below.

The following tests may be abnormal in patients with chronic liver disease:

- Aminotransferases- aspartate aminotransferase (AST) and alanine aminotransferase (ALT)
- Alkaline phosphatase (AP)
- Gamma-glutamyl transpeptidase (GGT)- GGT levels correlate reasonably well with AP in liver disease but are non-specific
- Bilirubin
- Albumin
- Prothrombin time

- Serum sodium- hyponatremia is common in patients with cirrhosis and ascites
- Platelets- thrombocytopenia is related to portal hypertension, which causes splenomegaly
- Hemoglobin- anemia may be due to multiple factors, including gastrointestinal blood loss, hypersplenism, bone marrow suppression, or other causes
- White blood cells- neutropenia is due to hypersplenism

Imaging studies are not adequately sensitive or specific to diagnose cirrhosis on their own. A diagnosis of liver fibrosis or cirrhosis must take into consideration the findings on physical exam and laboratory testing. Abdominal ultrasound is typically the first radiologic study obtained due to its availability and lack of exposure to intravenous contrast or radiation.

Complications of Cirrhosis

Patients with cirrhosis are a reduced life expectancy and may experience some of the following complications:

- Variceal hemorrhage
- Ascites
- Spontaneous bacterial peritonitis (SBP)
- Hepatic encephalopathy
- Hepatocellular carcinoma (HCC)
- Hepatorenal syndrome
- Hepatopulmonary syndrome
- Portal vein thrombosis
- Cardiomyopathy

Goals of Management

The major goals of treatment of patients with chronic liver disease include:

- Slowing or reversing the progression of liver disease
- Preventing additional insults to the liver through:
    - Vaccinations
    - Avoidance of hepatotoxic medications (e.g., acetaminophen >2g per day)
    - Avoidance of nonsteroidal anti-inflammatory drugs, due to bleeding risk
    - Avoidance of substances of abuse
- Medication adjustments or discontinuation, when necessary, for patients with impaired hepatic metabolism
- Managing symptoms and laboratory abnormalities
- Preventing and treating complications of cirrhosis

Treatment of Cirrhosis

Treatment of patients with cirrhosis may include:

- Beta blockers for the prevention of variceal bleeding in patients with esophageal varices
- Antibiotic prophylaxis if risk factors for spontaneous bacterial peritonitis are present
- Diuretic therapy for ascites, along with salt restriction
- Lactulose or rifaximin therapy for encephalopathy

Specialty Referral

Consultation with a hepatologist should be considered in the following situations:

- Patients suspected of having cirrhosis if the diagnosis remains unclear after noninvasive testing (e.g., imaging and lab tests)
- Decompensated cirrhosis (defined as patients with variceal hemorrhage, ascites, SBP, HCC, hepatorenal syndrome, or hepatopulmonary syndrome)

- Transplant recipients taking immunosuppressant medications

Screening for esophageal varices with an endoscopy should be done in patients with decompensated cirrhosis and other patients who are at high risk for esophageal bleeding (e.g., platelet count <150,000 per mm^3).

Correctional Health Considerations

- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.
- Patients with severe fibrosis (F3) or cirrhosis (F4) should be seen for a chronic care visit every 90 days at a minimum.
- Diagnostic testing for patients with chronic liver disease:
    - Baseline lab testing- complete blood count (CBC), comprehensive metabolic panel (CMP), prothrombin time/international normalized ratio (PT/INR), and fibrosis testing (e.g., FibroSure)
    - Additional testing (when needed for diagnosis of chronic liver disease)- fibrosis testing (e.g., FibroSure), hepatitis panel, ferritin, transferrin saturation
        - Fibrosis testing (e.g., FibroSure) for patients with a score of F0, F1, or F2 should be done yearly
        - Fibrosis testing (e.g., FibroSure) should not be repeated in patients with a score of F3 or F4.
    - Baseline radiology testing- abdominal ultrasound
    - Every 90 days- CBC, CMP, PT/INR
    - Patients with severe fibrosis (F3) or cirrhosis (F4) should have an abdominal ultrasound every 6 months to screen for hepatocellular carcinoma
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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Cirrhosis in adults: Overview of complications, general management, and prognosis - UpToDate. Accessed December 17, 2022

Diabetes Mellitus

Introduction

Diabetes mellitus is one of the most common conditions managed by primary care providers. Uncontrolled diabetes can lead to limb amputation, kidney failure, vascular and heart disease, and blindness. Achieving good glycemic control can minimize the risk of diabetes-related complications. The vast majority of diabetic patients have type 2 diabetes.

Diagnosis

The diagnosis of diabetes mellitus can be made with one of the following:

- Fasting plasma glucose of 126 mg/dL or greater
- Hemoglobin A1C of 6.5% or greater
- Random plasma glucose level of 200 mg/dL or greater

Initial and Ongoing Evaluation

Morbidity from diabetes includes the following:

- Macrovascular disease (atherosclerosis)
- Microvascular disease (retinopathy, nephropathy, and neuropathy)

At each chronic care visit, a diabetic patient should be evaluated for glycemic control, cardiovascular risk factors, and diabetes-related complications. In addition, the patient should be counseled on diet, physical activity, and tobacco cessation (when applicable).

The physical exam should include a foot examination at each chronic care visit.

A1C Goals

Glycated hemoglobin (A1C) goals should be tailored to the individual, with a focus on minimizing microvascular complications while working to avoid hypoglycemia.

- For most patients, an A1C of ≤7.0 percent is a reasonable goal
- For older adults, an A1C of <8.0 percent is appropriate
- For adults with a limited life expectancy, a goal A1C of <8.0 percent is also appropriate, when there is little likelihood of benefit from intensive therapy.
- During pregnancy, stricter management with a goal A1C of <6.0 percent may be indicated.

Prevention of Cardiovascular Morbidity

The following should be prioritized in diabetes patient in order to reduce cardiovascular risk:

- Smoking cessation (when indicated)
- Weight loss (when indicated)
- Aggressive management of hypertension
- Aggressive management of cholesterol

- Use of low dose aspirin
- Use of glucose-lowering medications

Diagnostic Testing

Coronary artery disease: Diabetic patients have a higher risk of asymptomatic coronary artery disease. The decision to perform a cardiac evaluation should be individualized to a patient based on their risk factors, any atypical cardiac symptoms, or electrocardiogram abnormalities.

Nephropathy: A urine albumin-to-creatinine ratio test (mg/gram) is the preferred screening strategy for diabetic nephropathy. Abnormal test results should be repeated for confirmation over a three-to-six-month time period due to the possibility of false positive results.

- Urine albumin-to-creatinine ratio values between 30 and 300 mg/gram is called moderately increased albuminuria (formerly microalbuminuria) and is usually indicative of diabetic nephropathy.
- Urine albumin-to-creatinine ratio values above 300 mg/gram severely increased albuminuria (formerly macroalbuminuria) and is also called proteinuria.

Treatment of Diabetes

Type 1 diabetes

- For patients with type 1 diabetes, intensive insulin therapy is recommended.
- A treatment plan that coordinates meals and activity with physiologic insulin replacement should be implemented.
    - This involves the frequent monitoring of blood glucose levels.

Type 2 diabetes

- Metformin should be initiated early in the course of type 2 diabetes, assuming that there are no contraindications.
- If lifestyle interventions and metformin are not sufficient to achieve good glycemic control, then a second oral agent or injectable agent should be added, including insulin.
- The natural history of type 2 diabetes in most patients is for blood glucose and A1C to increase over time.

Blood Glucose Monitoring

Blood glucose monitoring (BGM) is useful in diabetic patients who take medications that can cause hypoglycemia or need to be adjusted based on glucose levels.

- Intensive insulin regimens- for patients with type 1 diabetes or type 2 diabetes who take basal and prandial insulin, the optimum frequency of BGM is four times daily (before each meal and before bedtime).
- Basal insulin regimens- for patients with type 2 diabetes who take basal insulin, glucose levels are generally checked twice daily (fasting and sometime before dinner or bedtime).

Sliding Scale Insulin

Supplemental sliding scale insulin can be provided prior to meals and is dosed based upon the degree of hyperglycemia, as measured by the plasma glucose level.

Specialty Referrals

- For compliant patients who cannot achieve adequate glycemic control despite optimal medication and lifestyle management, a referral to an endocrinologist is recommended.
- Patients with diabetes should be referred for a dilated eye exam once yearly.

- Patients with a history of amputations or at high risk of developing diabetic foot ulcers should be referred to a podiatrist.

Correctional Health Considerations

- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.
- Diagnostic testing for patients with chronic liver disease:
    - Baseline lab testing- complete blood count (CBC), comprehensive metabolic panel (CMP), lipid panel, hemoglobin A1C, urine albumin-to-creatinine ratio
    - Every 90 days- CBC, CMP, hemoglobin A1C
        - Well-controlled patients who are not managed on insulin may have these tests performed every 6 months.
    - Annually- lipid panel, urine albumin-to-creatinine ratio
- Patients with insulin pumps may be managed in general population if their diabetes is well controlled.
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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Laboratory Monitoring of Commonly Prescribed Medications

Introduction

Laboratory studies are recommended for monitoring of patients on certain medications. This clinical practice guideline provides monitoring parameters for medications commonly used to treat epilepsy and psychiatric disorders. Medications for the treatment of seizures are referred to as antiseizure medications (ASM).

Laboratory monitoring of patients who are prescribed commonly used medications may be indicated to screen for underlying metabolic disorders.

Monitoring of drug levels should be done in situations where obtaining this information will guide management of the patient:

- To establish individual therapeutic medication concentrations
- To guide dosing adjustments
- To assess medication adherence
- To evaluate for possible medication toxicity

Antipsychotic Medications

Antipsychotic medications are used in the treatment of psychosis, schizophrenia and acute states of mania, depression and paranoia. There are first generation and second-generation antipsychotics.

First generation antipsychotics work through Dopamine D2 neuroreceptor blockade and are classified by potency.

Second generation antipsychotics (SGAs) are known to have fewer side effects than first generation and target neuroreceptor other than dopamine. When given in low doses they are less likely to cause significant extrapyramidal side effects or tardive dyskinesia. They are, however, more likely to cause metabolic side effects.

Adverse reactions from antipsychotic medications include:

- Extrapyramidal Symptoms (EPS), which are drug induced movement disorders that include: dystonia (continuous spasms and muscle contractions), akathisia (motor restlessness), and Parkinsonism
    - Symptoms include rigidity, bradykinesia (slowness of movement), tremor, and tardive dyskinesia (irregular jerky movements).
- Metabolic side effects associated with second generation antipsychotics include:
    - Metabolic syndrome
        - Defined as abdominal obesity, elevated blood pressure, elevated fasting plasma glucose, high serum triglycerides, and low HDL levels
    - Type 2 diabetes
    - Hyperosmolar hyperglycemic state
        - Hyperosmolar Hyperglycemic State is a condition in which high blood sugar results in high osmolarity without significant ketoacidosis. The serum glucose concentration frequently exceeds 1000 mg/dL and neurologic abnormalities are frequently present.

- Neuroleptic malignant syndrome (NMS) is a potential side effect of all antipsychotic medications. This is a rare, potentially fatal condition that can occur in any patient taking antipsychotic medications. Symptoms usually occur after starting an antipsychotic or changing doses.

Abnormal Involuntary Movement Scale (AIMS)

- AIMS is a measurement of potential adverse effects from psychotropic medications.
- It is performed to identify the presence or absence of abnormal motor movements.
- AIMS should be done prior to initiating antipsychotic medication, with any dosing increases, and every six months while a patient is maintained on treatment.
- The following categories are evaluated and given a numerical score:
  - Facial and oral movements
  - Extremity movements
  - Trunk movements
  - Global judgement
  - Dental status

Depakote (valproic acid)

Depakote is used to treat bipolar disorder, mood disorders, seizures, and migraines.

Signs of Depakote toxicity include central nervous system dysfunction, ranging from mild drowsiness to coma. Other clinical findings may include respiratory depression, hypotension, hyperthermia, vomiting, and diarrhea

Dilantin (phenytoin)

Dilantin is used to treat seizures.

Signs of Dilantin toxicity include nystagmus, ataxia, slurred speech, nausea, and vomiting. At higher levels of toxicity, coma, cardiac dysrhythmias, and seizures may occur.

Lamictal (lamotrigine)

Lamictal is used to treat bipolar disorder and seizures.

The dose should be titrated gradually.

Adverse effects include severe skin conditions (e.g., Stevens-Johnson syndrome, and toxic epidermal necrolysis).

- Nearly all cases of severe skin conditions appear in the first 2 to 8 weeks of therapy.

Lithium

Lithium is used for the treatment of bipolar disorder.

Drug interactions

- Multiple drug interactions between lithium and other medications are possible. Providers should exercise caution when prescribing medications to patients taking lithium.

Coordination between the psychiatric provider and medical provider should take place for patients who are on lithium and develop thyroid problems.

- The TSH levels should be followed closely, and the appropriate treatment given.

Lithium toxicity can occur on an acute or chronic basis. Symptoms may include nausea, vomiting, and diarrhea. Neurologic signs may include sluggishness, ataxia, confusion, or agitation.

Tegretol (carbamazepine)

Tegretol is used for treatment of bipolar disorder, mood disorders and seizures.

Signs of Tegretol toxicity may include drowsiness, nystagmus, tachycardia, lethargy, seizure, coma, hypotension, or dysrhythmia.

Conclusion

- Health staff must be diligent in the monitoring of patients on psychotropic medications and ASM therapy for metabolic problems and other side effects.
- If medication toxicity is suspected, the patient should be evaluated, nursing protocols should be followed, and a provider should be contacted immediately.
- Laboratory monitoring, as well as following weights and blood pressure, helps to ensure the provision of safe care.
- Communication and consistency of practice among medical and psychiatric providers will lead to optimal patient care and maintenance of safety standards.
- Patients should receive education on the importance of medication compliance, the importance of consulting with a provider, prior to stopping medications, and the importance of contacting health staff for any suspected adverse effects to medication.
- Patient follow up should occur as clinically indicated for the duration of the medication therapy.

Correctional Health Considerations

- The psychotropic medications and ASMs listed in this guideline should be prescribed as DOT (direct observed therapy).
- Patients with a seizure disorder and mood disorder may be effectively managed with one medication for both conditions.
    - Clear communication between the medical and psychiatric team needs to occur, in order to ensure that coordination of care is taking place.
- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- All patients with psychiatric conditions should have the applicable mental health score and SMI designation added to their chart.
- Frequency of follow up visits is based on Mental Health Score (as outlined in the Mental Health Technical Manual), clinical risk, complexity of illness, and patient presentation.
    - Duration between visits may not exceed the timeframes outlined in the Mental Health Technical Manual for individuals with the patient's designated mental health score.
- Diagnostic testing:
    - Baseline lab testing- complete blood count (CBC), comprehensive metabolic panel (CMP), thyroid-stimulating hormone (TSH), lipid panel, hemoglobin A1C
    - Baseline electrocardiogram- in patients who have cardiovascular risk factors
    - Medication levels
        - For lithium, Depakote (valproic acid), Tegretol (carbamazepine), and Dilantin (phenytoin) check medication levels:
            - 10-14 days after initiating treatment
            - 10-14 days after dosing changes
            - Every 6 months
        - In addition, provider discretion should be utilized to determine the need for medication levels to guide treatment decisions (see Introduction)
    - Every 6 months
        - CBC, CMP (for all medications in this clinical practice guideline)

        - CBC, CMP, Lipid panel, A1C (for patients on antipsychotics)
        - CBC, CMP, TSH (for patients on lithium)
- Medication compliance should be reviewed and emphasized with the patient during clinical encounters.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient during clinical encounters.

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Transgender Care

Introduction

The term "transgender" or gender incongruence is generally used to describe a diverse group of individuals whose gender identity or expression differs from that assigned at birth. Epidemiologic estimates vary widely, but generally find about 0.3-0.6 percent of the adult population identify as transgender.

Transgender people have primary and preventive health care needs that are similar to the general population. Depending on an individual's history of gender-affirming care, primary and preventive care may require special considerations.

Gender-Affirming Care

Health staff should refer to transgender patients by their preferred name and pronouns, reassure them about confidentiality and educate frontline staff.

- Transgender men are people with a masculine gender identity who were designated a female sex at birth.
- Transgender women are people with a feminine gender identity who were designated a male sex at birth.
- Nonbinary gender identity is a term used to describe a person of any birth-designated sex who has a gender identity that is neither masculine nor feminine, is a combination of the two, or is fluid.
- Gender dysphoria is defined as the discomfort arising from the incongruence between a patient's gender identity and their external sexual anatomy at birth.

Screening

All inmates should be screened at Intake for gender non-conformity.

Clinical Management

Health staff who deliver medical, dental, and mental health care to transgender patients should become comfortable working with this population to meet their healthcare needs, including gender-affirming interventions. Hormonal therapy can be managed by primary care providers in most situations. A multidisciplinary approach that includes collaboration between medical and mental health staff is essential in the treatment of transgender patients.

Patient Evaluation

The assessment of transgender patients should include obtaining the following information:

- Medical and mental health history
- Gender-related hormonal and surgical treatments
- Whether previous hormone treatment was medically supervised or unsupervised (purchased on the internet or street).
- Patient’s understanding of medical effects and adverse effects of GD therapy
- Likelihood of patient’s adherence to therapy
- Patient’s goals with hormone replacement therapy
- Patient’s future plans for hormone treatment, surgical treatment or fertility
- Transgender males: gynecologic and obstetric history

Physical Exam

Regardless of gender identity of the patient, physical exams should be based on the organs present and patient's symptoms. An exam of the genitals should not be done for the sole purpose of classification.

In the correctional setting, healthcare providers may be asked to conduct a genital exam for the purpose of classifying a patient with the correct population. This is not the role of a healthcare provider. Genital exams should only be conducted for medically necessary reasons.

Treatment Goals

Transgender treatment is usually undertaken with the goal of making the external appearance more congruent with gender identity. This is done by inducing physical changes that match gender identity, by maintaining hormone levels in the normal physiologic range for the target gender.

Setting realistic expectations about the likely effects of hormone therapy is important. Complete elimination of secondary sexual characteristics may not be possible, including skeletal characteristics, voice, and hair growth. Similarly, the development of desired physical characteristics, like breast tissue, may not reach the magnitude desired by the patient, even with higher doses of hormonal therapy.

Current pre-incarceration hormone therapy with a prescription should be continued without interruption, unless there is a medical reason to the contrary. Initiation of hormones may take place on a case-by-case basis based on the patient's treatment goals.

Patients who wish to pursue additional treatments may discuss their request with onsite health staff or submit a request to the Arizona Department of Corrections, Rehabilitation and Reentry (ADCRR) Transgender Committee.

Transgender Women (Male-to-Female or MTF) Goals

In transgender women, the goal is elimination of facial hair, induction of breast formation, more female fat/muscle distribution, etc.

The recommended combination is estrogen therapy and an antiandrogen agent. When initiating therapy, patients should be started on low doses and monitored for adverse effects.

Dose titrations should be done based on lab testing for hormonal levels and other parameters like serum electrolytes.

Injectable medications can be considered, based on recommendations from a supervising physician or specialist, in situations when target serum hormone levels cannot be achieved with oral medication.

Estrogen

- Oral estradiol: titrate doses every 3 months to reach therapeutic levels based on lab testing and tolerability
    - Start with 2mg once daily
    - Increase to 2mg twice daily, if necessary
    - Increase to 4mg twice daily, if necessary
- Potential adverse effects include venous thromboembolism

Antiandrogen agents

- Spironolactone: titrate doses every 3 months to reach therapeutic levels based on lab testing and tolerability
    - Start with 25mg twice daily
    - Increase to 50mg twice daily, if necessary
    - Increase to 100mg twice daily, if necessary

- A CMP should be ordered within 2-3 days of starting spironolactone or any dosing change.
- Potential adverse effects include hypotension and electrolyte abnormalities

Hormone Targets

- Measure levels every 3 months for the first year of treatment, then every 6 months when levels are stable.
    - Estradiol 100-200 pg/mL
- Levels should be maintained <200pg/mL
    - Testosterone <50 ng/dL

Cancer Screening for Transgender Women

- Breast cancer screening recommendations for transgender women are the same as for non-transgender women.
- Prostate cancer screening recommendations are like those for non-transgender men and based on a discussion of the risks and benefits of screening.
- Refer to the Clinical Preventive Services Clinical Practice Guidelines for further information.

Transgender Men (Female-to-Male or FTM) Goals

In transgender men, the goal is to stop menses and induce virilization, including a male pattern of hair, change in voice, physical contours, clitoral enlargement, etc.

Dose titrations should be done based on lab testing for hormonal levels and other parameters like a complete blood count.

Androgen Therapy

- Testosterone cypionate: titrate doses every 3 months to reach therapeutic levels based on lab testing and tolerability
    - Start with 50mg intramuscularly (IM) once per week
    - Increase to 100mg IM once per week, if necessary
    - Adverse reactions include hyperlipidemia and polycythemia

Hormone Targets

- Measure levels every 3 months for the first year of treatment, then every 6 months when levels are stable.
    - Testosterone 400-800 ng/dL
        - Check testosterone levels midway between injections.
    - Estradiol <50 pg/mL

Cancer Screening for Transgender Men

- Breast cancer screening recommendations for transgender men with intact breasts are the same as for non-transgender women.
- Cervical cancer screening recommendations for transgender men with an intact cervix are the same as for non-transgender women.
- Refer to the Clinical Preventive Services Clinical Practice Guidelines for further information.

Discharge Planning

Transgender inmates receiving hormone therapy should receive a sufficient supply upon release to last until a community provider assumes care. Referrals should be made to community-based organizations with sensitive and inclusive services for transgender people.

Correctional Health Considerations

- Refer to Department Order 810, Management of LGBTI Inmates, for gender specific items, including clothing and cosmetics.
- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.
- Diagnostic testing:
    - If the patient desires hormone therapy, obtain the following baseline labs: CBC, CMP, TSH, lipid panel, testosterone level, estradiol level
    - Transgender men and women on hormone therapy:
        - First year of therapy: estradiol, total testosterone, CMP, and CBC every 90 days
        - After the first year: estradiol, total testosterone, CMP, CBC, and lipid panel every 180 days
- Oral medication for transgender care may be ordered as KOP (Keep on Person) if the patient is reliable to take the medication as prescribed and KOP is appropriate to housing unit.
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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Treating Trauma Survivors

Introduction

The overwhelming majority of incarcerated people are survivors of trauma.

- Traumatic events often involve a perceived or actual loss of control, which may lead to an inability to protect oneself, including:
  - Events that may cause physical harm to an individual (e.g., motor vehicle accident, natural disaster)
  - Violations of an individual's personal space (e.g., physical or sexual assault)
  - Situations involving manipulation and secrecy (e.g., repeated sexual or physical assault at the hands of a loved one or caregiver)
- According to the Centers for Disease Control and Prevention (CDC) approximately 64 percent of the general population (non-incarcerated) has experienced at least one adverse childhood experience.
- According to the Compassion Prison Project 98 percent of the prison population has at least one adverse childhood experience
- 54 percent of women and 60 percent of men in prison have experienced physical violence in their lives.
- The rates of reported sexual abuse are 52 percent of women and 49 percent of men in prison.

Universal precautions should be taken, and all inmate-patients should be treated as though they are survivors of trauma.

Physical Effects of Trauma

The physical effects of trauma on an individual can be devastating.

- Trauma survivors are at elevated risk for cardiovascular disease, diabetes, cancer, chronic obstructive pulmonary disease, ischemic heart disease, liver disease and poor health related quality of life, (ACEs Study, 1997)
- If trauma is severe, endured for a long period of time or is repeatedly triggered, there can be serious physiological implications for the individual.
- Severe and persistent trauma can also lead to a reduced stress and immune response.
  - This makes the individual susceptible to infection.
  - Experiencing severe and persistent trauma also makes an individual more susceptible to developing autoimmune disorders such as lupus, Graves' disease, rheumatoid arthritis, etc.
  - The persistent activation of the autonomic sympathetic branch of the autonomic nervous system can lead to elevated heart rate and blood pressure, increasing an individual's risk of high blood pressure and heart disease.

Psychological Effects of Trauma

The deregulation of hormones, specifically catecholamine, can cause damage to the individual's memory and lower the individual's ability to have rational thought processes.

- Trauma survivors are at risk for:
  - Early initiation of sexual activity, having multiple sexual partners, adolescent pregnancy, unintended pregnancies and contracting sexually transmitted diseases
  - Early initiation of smoking and developing illicit substance abuse problems

    - Developing mental health disorders including mood disorders, personality disorders, conduct disorders and psychotic disorders is elevated
    - Making a suicide attempt and suffering premature mortality
- Trauma survivors may have an inability to distinguish danger:
    - Causing an individual to be in a continuous state of hyper-vigilance
    - Constantly scanning the environment for potential danger
    - Misinterpreting benign actions as threatening and dangerous

Behavioral Effects of Trauma

Severe and persistently triggered trauma can also have a significant negative impact on an individual's behavior.

- These individuals may present with frequent crises, aggression and responses that may seem disproportionate or exaggerated.
- They may be reluctant to request medical, dental or mental health services.
    - Once requested, they may have difficulty following through with treatment and following recommendations given from mental health, medical and dental providers.
- They may find themselves caught in the justice system, coming in and out of incarcerated environments, having difficulty fulfilling commitments to probation or parole.

Loss of Power

Given the large number of individuals in a correctional environment who are survivors of trauma and the elevated risk of re-traumatizing these individuals, it is recommended that universal precautions be taken, and all inmate-patients are treated as though they are survivors of trauma.

- Many of the policies and procedures in correctional, institutional, and even medical settings mimic the dynamics of an individual's past traumatic experience.
    - When an individual is detained, they lose a significant amount of power and control over their body and their ability to protect themselves. Examples include:
        - Strip searches in front of strangers
        - Cuffing of hands and/or legs
        - Restriction of movement
        - Being placed in cells with individuals who may be perceived to be predators
    - In correctional and medical settings, there may be common practices of invading individual's space without their consent or approval.
        - When procedures are not fully explained, inmate patients are not empowered to make informed decisions.
        - When patient consent is not obtained before making physical contact (e.g., to take blood pressure, temperature, or any other hands-on procedure), the dynamics of past trauma are mimicked, and the individual is at risk for being triggered.

Screening

All inmates should be screened and assessed for trauma exposure as early as possible in the intake process.

- Screening, early identification and treatment of trauma improves engagement in treatment, the effectiveness of treatment, completion of treatment and relapse prevention.
- Appropriate identification and treatment of trauma also reduces instances of inmate-on-inmate assaults, inmate on staff assaults, completed suicides as well as suicide attempts and gestures.
- All screening instruments should include safe, respectful, non-stigmatizing, evidence-based questions to identify the presence of trauma and the need for trauma-specific assessment and treatment.
- Before beginning questioning regarding trauma, the sensitive nature of the questions should be acknowledged by the interviewer.
- The inmate-patient should also be given the opportunity to decline answering questions they feel uncomfortable answering, and given breaks as needed.

Evaluation

All individuals who answer affirmatively to questions about victimization will receive a mental health evaluation and be offered mental health services while incarcerated.

- Mental Health Staff will share with the individual what to expect in the assessment process, before the assessment begins.
- The evaluation will aim to identify the nature and extent of the individual's trauma related struggles as well as their resources and strengths.

Treatment Considerations

Treatment goals include:

- Active avoidance of patient re-traumatization
- Establishing and maintaining physical and psychological safety
- Treating everyone with respect and dignity
- Performing mental, dental and physical exams in a private setting, within established security parameters

Trauma-informed care should be performed as follows:

- Explain the process before performing an exam or treatment.
- Offer to answer any questions before beginning.
- Validate any concerns they may have as understandable and normal.
- Inform the individual that they may stop or pause treatment at any time.
- Ask permission before touching the individual to perform a physical exam, take blood pressure, give a shot, take a temperature, etc.
- Talk to the individual throughout the procedure, letting them know what you are doing and why.
- Level the power differential as much as possible (e.g., refer to those served as individuals, people, consumers, men, women, as opposed to "inmates").
- Acknowledge and affirm that the individual is the expert of his/her own experience.
- Collaborate with the individual (e.g., provide information regarding different treatment options and their respective risks and benefits, learn what the individual's goals are and work within those goals).
- Empower the individual to choose which treatment is right for them.
- Respect their decision not to choose treatment currently (if they are legally competent to make this decision).
- Empower the individual by giving them the tools they need to manage their condition.
- Provide hope that they can effectively utilize the tools given to them to manage their conditions and improve their life.

Assisting an Individual Who Has Been Triggered

- Be aware of the physical environment.
- Ensure the safety of the individual and others.
- Remain calm, speak in a calm voice.
- Provide the individual with as much personal space as possible.
- Avoid making demands unless necessary to keep yourself and others safe.
- Assist in grounding the individual. Ask them to:
    - Tell you their name, how old they are, where they are currently, the current date
    - Tell you who you are and what your role is
- Remind them of their safety in the current environment.
- Watch the patient's behavior and listen to everything they say.
- Acknowledge and validate feelings.
- Reassure and redirect as needed.
- Provide clear direction and give options whenever possible.
- Debrief once the individual is completely calm.

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Anxiety

Introduction

Generalized anxiety disorder (GAD) and panic disorder (PD) are among the most common mental disorders in the United States and are frequently encountered in by correctional health providers.

Medical, psychiatric, and mental health staff treat patients with anxiety on a regular basis. Anxiety disorders can negatively impact a patient's quality of life and disrupt important activities of daily living. Evidence suggests that the rates of missed diagnoses and misdiagnosis of GAD and PD are high, as symptoms are often attributed to physical causes.

The main symptom of GAD is excessive, out-of-control worry, and PD is identified by recurrent and unexpected panic attacks. Both conditions can adversely affect a patient's quality of life and interfere with activities of daily living. Correctional health providers should adopt a team-based approach with mental health counselors to ensure that patients' needs are met.

Presentation and Diagnostic Criteria (Overview)

For more details and specifics, refer to Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5)

Patients with GAD typically present with excessive anxiety about ordinary, day to day situations. It is hard to control, causes significant distress or impairment, and occurs on more days than not for at least six months. The anxiety is intrusive, causes distress or functional impairment, and often encompasses multiple domains (e.g., finances, work, health, factors surrounding incarceration).

Anxiety is often associated with physical symptoms, such as sleep disturbance, restlessness, muscle tension, gastrointestinal symptoms, and chronic headaches. Some factors associated with GAD include female sex, unmarried status, lower education level, poor health, and presence of life stressors.

PD is characterized by episodic, unexpected panic attacks that occur without a clear trigger. Panic attacks are defined by the rapid onset of intense fear (typically peaking within about 10 minutes) with additional physical or psychological symptoms (e.g., palpitations, sweating, trembling, shortness of breath, nausea, dizziness, derealization, or fear of dying). Patients with PD also have excessive worry about further attacks or modify their behavior in maladaptive ways to avoid them.

Differential Diagnosis and Comorbidity

When evaluating a patient for a suspected anxiety disorder, it is important to exclude medical conditions with similar presentations.

Examples of these conditions include:

- Endocrine disorders such as hyperthyroidism, pheochromocytoma, or hyperparathyroidism
- Cardiopulmonary conditions such as arrhythmia or obstructive pulmonary disease
- Neurologic diseases such as epilepsy, or transient ischemic attacks

- Other psychiatric disorders such as major depressive disorder, bipolar disorder
- Use of substances such as caffeine, albuterol, levothyroxine, or decongestants
- Substance misuse or withdrawal may also present with similar symptoms and should be ruled out.

Many patients with GAD or PD meet criteria for other psychiatric disorders, including major depressive disorder and social phobia. Clinical Practice Guideline for depression should be referenced for additional information. Evidence suggests that GAD and PD usually occur with at least one other psychiatric disorder, such as mood, anxiety, or substance use disorders. When anxiety disorders occur with other conditions, historic, physical, and laboratory findings may be helpful in distinguishing each diagnosis and developing appropriate treatment plans.

Treatment

Medication or psychotherapy are appropriate initial treatment options for GAD and PD. There are limited head-to-head comparisons of cognitive behavioral therapy (CBT) and serotonergic antidepressants. Meta-analyses have found their efficacy tend to be roughly equivalent. Combining medication and psychotherapy may be more effective for patients with moderate to severe symptoms. A team-based approach between medical/psychiatric providers and mental health counselors allows for a 'whole patient' approach and full utilization of services during a patient's incarceration.

Medication

Selective serotonin reuptake inhibitors (SSRIs) serotonin-norepinephrine reuptake inhibitors (SNRIs) and are considered first-line therapy for GAD and PD.

Benzodiazepines are not more effective than antidepressants for treating anxiety disorders and should not be used as first-line therapy.

- Additionally, benzodiazepines are associated with withdrawal, rebound anxiety, and dependence.

There is no evidence to support the augmentation of antidepressant medication with atypical antipsychotics or buspirone (Buspar).

Medications should be titrated slowly to decrease the initial activation. Medications should not be considered ineffective until they are titrated to the high end of the dose range and continued for at least four weeks, due to the typical delay in onset of action. Once symptoms have improved, medications should be used for 12 months before tapering to limit relapse. Some patients will require longer treatment.

Psychotherapy and Relaxation Therapy

Psychotherapy includes many different approaches, such as Cognitive Behavioral Therapy, Mindfulness Based Stress Reduction, relaxation exercises, mental imagery, breathing exercises and education. Psychotherapy is as effective as medication for GAD and PD. Although existing evidence is insufficient to draw conclusions about many psychotherapeutic interventions, structured CBT interventions have consistently proven effective for the treatment of anxiety in the primary care setting.

Psychotherapy may be used alone or combined with medication as first-line treatment for PD and GAD. Determination of a treatment plan will be made as a cooperative effort between the provider, mental health counselor, and patient.

Education

Compassionate listening and education are an important foundation in the treatment of anxiety disorders. The establishment of a therapeutic alliance between the patient and provider/counselor is important to allay fears of interventions and to progress toward treatment.

Common lifestyle recommendations that may reduce anxiety-related symptoms include identifying and removing possible triggers (e.g., caffeine, stimulants, nicotine, dietary triggers, stress), and improving sleep quality/quantity and physical activity.

In addition to decreased depression and anxiety, physical activity is associated with improved physical health, life satisfaction, cognitive functioning, and psychological well-being. Physical activity is a cost-effective approach in the treatment of GAD and PD. Aerobic exercise or calisthenics for 20 minutes three times weekly has been shown to decrease anxiety.

Correctional Health Considerations

- For patients who are on a mental health watch, with unmanaged symptoms of anxiety, the patient should be scheduled to see a psychiatric provider as clinically indicated.
- During medication management appointments, providers should ensure that a psychology associate appointment is scheduled.
- Medications that are prone to abuse and diversion should be avoided; prescribers should utilize therapeutic equivalent medications that are appropriate for use in a correctional setting.
- Diagnostic testing should be considered to rule out medical conditions that may mimic anxiety, including a complete blood count (CBC), comprehensive metabolic panel (CMP), and thyroid-stimulating hormone (TSH).
- Patients on SSRIs and SNRIs may be prescribed medications KOP (keep on person) when deemed appropriate.
- Communication and consistency of practice among medical and psychiatric providers is essential to optimal patient outcomes.
- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- All patients with psychiatric conditions should have the applicable mental health score and SMI designation added to their chart.
- Psychiatric provider follow up should take place within 30 days after initiation of medication, sooner if clinically indicated.
- Frequency of follow up visits is based on the Mental Health Score (as outlined in the Mental Health Technical Manual), clinical risk, complexity of illness, and patient presentation.
    - Duration between visits shall not exceed the timeframes outlined in the Mental Health Technical Manual for individuals with the patient's designated mental health score.
- Medication compliance should be reviewed and emphasized with the patient during clinical encounters.
- Education specific to managing symptoms of anxiety should be provided to the patient during clinical encounters.

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Bipolar Disorder

Introduction

Bipolar disorder should be considered in patients who present with symptoms of depression, mania, or hypomania. It can be challenging to diagnose, and for some patients years may elapse between seeking treatment and receiving the correct diagnosis.

- Bipolar I disorder is characterized by a manic episode with or without psychosis. Major depressive episodes are common in Bipolar I, but are not required for the diagnosis.
- Bipolar II disorder is characterized by at least one hypomanic episode and at least one major depressive episode. Patients with Bipolar II disorder have never had a manic episode.

Patients with bipolar disorder have higher rates of other mental health disorders, substance used disorders, and comorbid chronic medical illnesses.

Presentation and Diagnostic Criteria (Overview)

For more details and specifics, refer to the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5).

The initial evaluation of patients with possible bipolar disorder includes questions about major depression, mania, hypomania, suicidal ideation, psychotic features (delusions or hallucinations), and medical diagnoses.

The mood disturbance is sufficiently severe to cause marked impairment in social or occupational functioning, or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.

The episode is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication, or other treatment, or to another medical condition.

Bipolar I Disorder

For a diagnosis of bipolar disorder, a past or current manic episode is required. The manic episode may have been preceded by and may be followed by hypomanic or major depressive episodes

Manic Episode is characterized by:

- Lasting at least 7 consecutive days
- Are present most of the day, nearly every day.
- Are sufficiently severe to cause marked impairment in social or occupational functioning or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.
- A period of abnormally and persistently elevated, expansive, or irritable mood, activity, or energy and three or more (four if mood is only irritable) of the following symptoms:
    - Inflated self-esteem or grandiosity
    - Decreased need for sleep
    - More talkative than usual, or pressure to keep talking
    - Flight of ideas or racing thoughts
    - Distractibility (as reported or observed)

- Increase in goal-directed activity or psychomotor agitation
- Excessive involvement in risk-taking activities

Bipolar II Disorder

For a diagnosis of bipolar II disorder, a current or past hypomanic episode and major depressive episode is required.

Hypomanic Episode is characterized by:

- Lasting at least 4 consecutive days
- No prior manic episodes
- Symptoms described in "Manic Episode"

Major Depressed Episode is characterized by 5 or more of the following symptoms in 14 days:

- Depressed mood
- Markedly diminished interest in activities
- Weight loss or weight gain
- Sleep disturbance (insomnia or hypersomnia)
- Psychomotor agitation or retardation
- Fatigue or loss of energy
- Reduction of self-confidence
- Feelings of guilt or worthlessness
- Decreased concentration or indecisiveness
- Recurrent thoughts of death or suicidal ideation

Other categories of bipolar mood disorders include:

- Cyclothymic disorder
- Other specified/unspecified bipolar disorder

Differential Diagnosis

The differential diagnosis of bipolar disorder includes:

- Unipolar major depression
- Schizoaffective disorder
- Schizophrenia
- Attention deficit hyperactivity disorder
- Borderline personality disorder
- Substance use or withdrawal
- Medication use or withdrawal
- Dementia
- Delirium
- Mania due to general medical conditions

Treatment

Psychological interventions

- Psychotherapy
- Psychoeducation
- Coping skills
- Stress management

Pharmacological interventions

- Second generation antipsychotics (Risperidone, Olanzapine, Aripiprazole, other formulary agent)
- First generation antipsychotics
- Mood Stabilizer (Lithium, Valproic Acid, Lamotrigine, Oxcarbazepine, other formulary agent.
- Monotherapy
- Combined therapy
- Clozapine

Acute Manic and Hypomanic Episode Treatment

The goal of the treatment of mania and hypomania is to reduce acute symptoms without causing a switch to the opposite polarity.

Severe episodes are generally identified based on the presence of any of the following:

- Suicidal ideation or behavior
- Homicidal ideation or behavior
- Aggressive behavior
- Psychotic features (e.g., delusions or hallucinations)
- Poor judgement that puts the patient or others at risk

For severe manic episodes, initial treatment with lithium or valproic acid in combination with a second generation antipsychotic (e.g., risperidone or olanzapine) is recommended. For patients with severe, treatment-resistant mania, additional medication combination trials are recommended.

For patients with acute hypomania or mild to moderate mania, initial treatment with a second generation antipsychotic monotherapy is recommended. Other antipsychotics or mood stabilizers (e.g., lithium valproic acid, carbamazepine), are reasonable alternatives.

Acute Depressive Episode Treatment

Compared with manic and hypomanic episodes, bipolar depressive episodes and residual depressive symptoms account for more impaired functioning and suicide risk.

For patients who are not receiving a mood stabilizing medication, initial treatment with a second generation antipsychotic medication is recommended. For treatment-resistant illness, options include valproic acid monotherapy or combination therapy with a second generation antipsychotic medication and mood stabilizer.

Maintenance Treatment

Maintenance pharmacotherapy is recommended early in the course of illness and has been shown to decrease relapses, hospitalizations, violent behavior, and suicides.

The goals for maintenance therapy are to:

- Reduce residual symptoms
- Delay and prevent recurrence of new mood episodes
- Reduce the risk of suicide
- Improve psychosocial functioning

For most patients who respond to acute pharmacotherapy, maintenance with the same regimen is recommended. For patients who do not tolerate the initial course of pharmacotherapy, a trial of lithium is recommended (if not tried previously). Reasonable alternatives include valproic acid, lamotrigine, or second generation antipsychotics.

Patients with frequent relapses or partial response, combination of a second generation antipsychotic and mood stabilizer is recommended.

Ongoing management involves monitoring for suicidal ideation, substance use disorders, treatment adherence, and recognizing medication adverse effects.

Psychotherapy

Psychotherapy is a useful adjunct to pharmacotherapy in the treatment of bipolar disorder.

- Group psychoeducation as an adjunctive treatment with pharmacotherapy can prevent recurrent episodes and improve medication compliance.
- For patients with poor medication compliance, cognitive behavioral therapy is a reasonable alternative.

Education

Patients with bipolar disorder should be educated about their illness to ensure understanding of the diagnosis and the need for treatment, optimize treatment compliance, and be able to identify signs of relapse.

Patients should be also provided with education in maintaining daily routines, good nutrition, exercise, sleep hygiene, and weight management. In addition, tobacco cessation and substance misuse should be addressed as indicated.

Diagnostic Testing

Please refer to the Laboratory Monitoring of Commonly Prescribed Medications Clinical Practice Guidelines

Abnormal Involuntary Movement Scale (AIMS)

- AIMS is a measurement of potential adverse effects from psychotropic medications.
- It is performed to identify the presence or absence of abnormal motor movements.
- AIMS should be done prior to initiating antipsychotic medication, with any dosing increases, and every six months while a patient is maintained on treatment.
- The following categories are evaluated and given a numerical score based on:
    - Facial and oral movements
    - Extremity movements
    - Trunk movements
    - Global judgement
    - Dental status

Release Planning

All patients being treated for bipolar disorder should be followed by the Mental Health team for counseling and discharge planning.

Patients with serious mental illness (SMI) should have post-release follow-up coordinated with patients' community outpatient clinic.

Correctional Health Considerations

- Psychiatry providers should be consulted for the evaluation and treatment of bipolar disorder.
- For patients who are on a mental health watch, with unmanaged bipolar symptoms, the patient should be scheduled to see a psychiatric provider as clinically indicated.
- During medication management appointments, providers should ensure that a psychology associate appointment is scheduled.

- Diagnostic testing should be considered to rule out medical conditions that may mimic Bipolar Disorder, including a complete blood count (CBC), comprehensive metabolic panel (CMP), and thyroid-stimulating hormone (TSH).
- Mood stabilizers and antipsychotic medications should be ordered DOT (direct observed therapy).
- Medications that are prone to abuse and diversion should be avoided; prescribers should utilize therapeutic equivalent medications that are appropriate for use in a correctional setting.
- Communication and consistency of practice among medical and psychiatric providers is essential to optimal patient outcomes.
- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Psychiatric provider follow up should take place within 30 days after initiation of medication, sooner if clinically indicated.
- Patient receiving psychotropic medications shall be educated on heat intolerance and photosensitivity reactions to medications; specifically during spring, summer and fall months.
- All patients with psychiatric conditions should have the applicable mental health score and SMI designation added to their chart.
- Frequency of follow up visits is based on Mental Health Score (as outlined in the Mental Health Technical Manual), clinical risk, complexity of illness, patient presentation.
    - Duration between visits may not exceed the timeframes outlined in the Mental Health Technical Manual for individuals with the patient's designated mental health score.
- Diagnostic testing should be performed based on the Laboratory Monitoring of Commonly Prescribed Medications Clinical Practice Guidelines.
- Medication compliance should be reviewed and emphasized with the patient during clinical encounters.
- Education specific to managing bipolar symptoms should be provided to the patient during clinical encounters.

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Depression

Introduction

Depression is a mood state characterized by feelings of sadness, despair, anxiety, emptiness, discouragement, or hopelessness.

A depressed mood may be a normal response to loss, disappointment, or feelings of failure. It may also occur as a symptom of a mental disorder (e.g., major depressive disorder, bipolar disorder, schizoaffective disorder, substance/medication-induced depressive disorder), or as the result of an underlying medical condition.

The focus of this clinical practice guideline is on the evaluation and treatment of unipolar major depression. For other conditions, including anxiety, bipolar disorder, and schizophrenia, please refer to the specific clinical practice guidelines on those topics.

Risk Factors

Risk factors for depression include:

- Internal factors: female sex, history of anxiety, low self-esteem, neuroticism
- External factors: conduct disorder, substance use
- Adverse life events: childhood sexual abuse, chronic medical conditions, disturbed family environment, history of divorce, lifetime trauma, low educational status, low social support, parental loss

Assessment

For the assessment of depressive symptoms, the patient's clinical history is the most important component of the examination.

In addition to interviewing the patient about the presence of depressive symptoms (see the "Diagnosis" section below), the history should include:

- Medical and mental health diagnoses
- Current medications
- Family history (e.g., depression, suicide, psychosis, and bipolar disorder)
- Social history (e.g., substance use, life stressors)

A mental health examination should take place, with a focus on alterations in mood and affect, cognition (e.g., attention, concentration, and memory), psychomotor activity, thought processes, speech, and suicidal thoughts.

Diagnosis

For more details and specifics, refer to the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5).

- The diagnosis of major depressive disorders is based upon clinical interviews with the patient.
- Depressed mood and anhedonia are the two cardinal symptoms of depression.

- Symptoms of depression are commonly identified using the SIGECAPS mnemonic:
    - Sleep disorders (either increased or decreased)
    - Interest deficit (anhedonia)
    - Guilt (worthlessness, hopelessness, or regret)
    - Energy deficit
    - Concentration deficit
    - Appetite disorder (either increased or decreased)
    - Psychomotor retardation or agitation
    - Suicidality
- The presence of four SIGECAPS symptoms, in addition to depressed mood or anhedonia, suggests depression, and further screening should take place.
- Men and women may manifest depression differently from each other.
    - Women with depression are more likely to report somatic symptoms (e.g., headaches, myalgias, gastrointestinal problems), as well as emotional effects like stress and crying.
    - Men with depression are my likely to report aggression, anger, substance use, or risky behavior.
- When screening is positive for possible depression, the diagnosis should be confirmed using DSM-5 criteria.

Suicide Risk

All depressed patients should be asked about suicidal ideation and behavior, including intent, means, specific plans and risk factors for suicide. A treatment plan should be developed based on a patient's level of risk.

Differential Diagnosis

The differential diagnosis of depression includes:

- General medical disorders
- Delirium (decreased level of alertness/consciousness and fluctuation of symptoms)
- Sadness (generally a normal, adaptive part of the human condition)
- Burnout (a work-related condition)
- Adjustment disorder with depressed mood
- Attention hyperactivity disorder
- Bipolar disorder
- Borderline personality disorder
- Complicated grief
- Schizophrenia
- Schizoaffective disorder

Bipolar disorder must be excluded, especially if the patient has ever experienced a manic or hypomanic episode.

There are a number of medical conditions that are associated with depression, (either as mimics of depression or coexisting conditions), including:

- Neurologic conditions: epilepsy, multiple sclerosis, Alzheimer disease, Parkinson disease, cerebrovascular disease, traumatic brain injury
- Other associated conditions: HIV/AIDS, neurosyphilis, cardiomyopathy, ischemic heart disease, heart failure, hypothyroidism, diabetes mellitus, vitamin deficiencies, parathyroid disorders, irritable bowel syndrome, collagen vascular disease, chronic liver disease

Prior to diagnosing an individual with a Major Depressive Disorder, the clinician must determine that the depressive episode is not attributable to physiological effects of a substance or another medical condition.

Workup

Laboratory evaluation is reasonable to confirm the diagnosis of depression, especially in older patients, in order to exclude medical conditions that may mimic depression.

- Testing may include a thyroid-stimulating hormone (TSH), complete blood count (CBC), and comprehensive metabolic panel (CMP).

Treatment

For the initial treatment of major depression, a combination of pharmacotherapy and psychotherapy is recommended.

Medication

Several classes of antidepressant medications are available, and the following principles should be followed in the prescribing of medications for depression:

- Efficacy between classes and within classes is comparable overall.
- The choice of medication should be based upon ease of use, prior efficacy for individual patients, side effect profile, ease of dosing, potential drug-drug interactions, and safety.
- In a correctional health setting, the following classes of medication are preferred from a safety and efficacy perspective:
    - Selective serotonin reuptake inhibitors (SSRIs)
    - Serotonin-norepinephrine reuptake inhibitors (SNRIs)
    - Serotonin modulators (e.g., trazodone)
- After starting on an antidepressant medication, patients often experience improvement within two weeks.
- A trial of medication for 6 to 12 weeks is generally undertaken before deciding whether antidepressants have sufficiently relieved symptoms.

Psychotherapy and Interpersonal Therapy

For patients with major depression, cognitive-behavioral therapy (CBT) or interpersonal psychotherapy are recommended.

Education on the use of relaxation techniques (e.g., progressive muscle relaxation or relaxation imagery) can be helpful, in addition to the primary treatment regimen.

Education

Patients with depressive disorders should be educated about their illness to ensure understanding of the diagnosis and the need for treatment, optimize treatment compliance, and be able to identify signs of relapse.

Patients should be also provided with education in maintaining daily routines, good nutrition, exercise, sleep hygiene, and weight management. In addition, tobacco cessation and substance misuse should be addressed as indicated.

Release Planning

Patients with serious mental illness (SMI) should have post-release follow-up coordinated with patients' community outpatient clinic.

Correctional Health Considerations

- For patients who are on a mental health watch, with unmanaged depression, the patient should be scheduled to see a psychiatric provider as clinically indicated.
- During medication management appointments, providers should ensure that a psychology associate appointment is scheduled.

- Diagnostic testing should be considered to rule out medical conditions that may mimic depression, including a complete blood count (CBC), comprehensive metabolic panel (CMP), and thyroid-stimulating hormone (TSH).
- Medications that are prone to abuse and diversion should be avoided; prescribers should utilize therapeutic equivalent medications that are appropriate for use in a correctional setting.
- Patients on SSRIs and SNRIs may be prescribed medications KOP (keep on person) when deemed appropriate.
- Communication and consistency of practice among medical and psychiatric providers is essential to optimal patient outcomes.
- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- All patients with psychiatric conditions should have the applicable mental health score and SMI designation added to their chart.
- Psychiatric provider follow up should take place within 30 days after initiation of medication, sooner if clinically indicated.
- Frequency of follow up visits is based on Mental Health Score (as outlined in the Mental Health Technical Manual), clinical risk, complexity of illness, patient presentation.
    - Duration between visits may not exceed the timeframes outlined in the Mental Health Technical Manual for individuals with the patient's designated mental health score.
- Medication compliance should be reviewed and emphasized with the patient during clinical encounters.
- Education specific to managing depressive symptoms should be provided to the patient during clinical encounters.

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Schizophrenia

Introduction

Schizophrenia is a psychiatric disorder involving chronic or recurrent psychosis associated with impairments in social and occupational functioning.

It represents a syndrome comprised of multiple diseases that present with similar signs and symptoms likely stemming from complex interactions between genes and the environment, resulting in neurotransmitter abnormalities.

Symptom onset is usually during adolescence. Diagnosis peaks between 18-25 years old for men and 25-35 years old for women. The worldwide prevalence is 1 percent. People with schizophrenia have higher rates of depression, anxiety disorders, substance abuse, and suicide than people without schizophrenia.

Diagnosis

For more details and specifics, refer to the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5).

The diagnosis of schizophrenia is based on the presence of two or more of the following symptoms each present for a significant portion of time during a 1-month period (or less if successfully treated), as well as social or occupational dysfunction for a significant portion of the time since the onset of the disturbance (Continuous signs of the disturbance persist for at least 6 months):

- Positive symptoms
  - Hallucinations- the perception of a sensory process in the absence of an external source
  - Delusions- a fixed, false belief
  - Disorganized behavior and speech
- Negative symptoms
  - Flat affect
  - Poverty of speech
  - Lack of interest or motivation
- Cognitive impairment
  - Processing speed
  - Attention
  - Working memory
  - Executive functioning
  - Social cognition
- Mood and anxiety symptoms
  - Common in schizophrenia

Differential Diagnosis

The differential diagnosis of bipolar disorder includes:

- Substance-induced psychotic disorder
- Mood disorders with psychotic features
- Sleep-related disorders

- Delusional disorder
- Paranoid personality disorder
- Schizotypal personality disorder
- Pervasive developmental disorder
- Psychosis secondary to organic causes

Course of Schizophrenia

The course of the disease process varies between individuals and may be affected by the following factors:

- Early intervention
- Multidisciplinary care approach
- Symptom types
- Level of stressors
- Socioeconomic factors
- Effectiveness and adherence to medications

Treatment

Antipsychotic medications are the first-line medication treatment for schizophrenia. In clinical trials, these medications have shown efficacy in the treatment of symptoms and behaviors caused by schizophrenia. Along with pharmacotherapy, psychosocial interventions can help patients achieve recovery.

- Acute phase treatment is needed during the first psychotic episode, or when patients with a prior history of schizophrenia have a psychotic relapse.
    - Acute phase treatment focuses on reducing the severity of psychotic thoughts and behaviors.
- Maintenance phase treatment is recommended for patients who have recovered from an acute psychotic episode and whose psychotic symptoms are reasonably well controlled.
    - The goals of maintenance antipsychotic treatment are to:
        - Minimize symptoms and functional impairments
        - Avoid relapses
        - Promote recovery that allows self-determination, full integration into society, and pursuit of personal goals

Antipsychotics eliminate or reduce positive symptoms to a tolerable level in about 70 percent of patients with schizophrenia. The lowest effective dose that achieves therapeutic goals should be used.

Non-Response to Treatment

In cases of non-response or partial response, antipsychotic doses can be gradually increased toward the high end of the recommended range.

- Studies of doses above the recommended range have not found higher doses to be more effective than the maximal recommended dose.
- For ongoing suboptimal treatment responses, switching to another antipsychotic medication is recommended.

For patients with psychotic symptoms that do not respond to two trials of antipsychotic monotherapy, a trial of clozapine should be considered.

- Treatment with clozapine requires close laboratory monitoring and enrollment of the patient in the REMS (Risk Evaluation and Mitigation Strategy), due to the risk of medication side effects.

Education

Patients with schizophrenia should be educated about their illness to ensure understanding of the diagnosis and the need for treatment, optimize treatment compliance, and be able to identify signs of relapse.

Patients should be also provided with education in maintaining daily routines, good nutrition, exercise, sleep hygiene, and weight management. In addition, tobacco cessation and substance misuse should be addressed as indicated.

Diagnostic Testing

Please refer to the Laboratory Monitoring of Commonly Prescribed Medications Clinical Practice Guidelines

Abnormal Involuntary Movement Scale (AIMS)

- AIMS is a measurement of potential adverse effects from psychotropic medications.
- It is performed to identify the presence or absence of abnormal motor movements.
- AIMS should be done prior to initiating antipsychotic medication, with any dosing increases, and every six months while a patient is maintained on treatment.
- The following categories are evaluated and given a numerical score:
    - Facial and oral movements
    - Extremity movements
    - Trunk movements
    - Global judgement
    - Dental status

Release Planning

All patients being treated for schizophrenia should be followed by the Mental Health team for counseling and discharge planning.

Patients with serious mental illness (SMI) should have post-release follow-up coordinated with patients' community outpatient clinic.

Correctional Health Considerations

- Psychiatry providers should be consulted for the evaluation and treatment of schizophrenia.
- For patients who are on a mental health watch with unmanaged psychotic symptoms, a psychiatry appointment should be scheduled as clinically indicated.
- During medication management appointments, providers should ensure that a psychology associate appointment is scheduled.
- Diagnostic testing should be considered to rule out medical conditions that may mimic schizophrenia and other psychotic disorders, including a complete blood count (CBC), comprehensive metabolic panel (CMP), and thyroid-stimulating hormone (TSH).
- Antipsychotic medications should be ordered DOT (direct observed therapy).
- Medications that are prone to abuse and diversion should be avoided; prescribers should utilize therapeutic equivalent medications that are appropriate for use in a correctional setting.
- Communication and consistency of practice among medical and psychiatric providers is essential to optimal patient outcomes.
- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
    - All patients with psychiatric conditions should have the applicable mental health score and SMI designation added to their chart.
- Psychiatric provider follow up should take place within 30 days after initiation of medication, sooner if clinically indicated.
- Frequency of follow up visits is based on Mental Health Score (as outlined in the Mental Health Technical Manual), clinical risk, complexity of illness, and patient presentation.

    - Duration between visits may not exceed the timeframes outlined in the Mental Health Technical Manual for individuals with the patient's designated mental health score.
- Diagnostic testing should be performed based on the Laboratory Monitoring of Commonly Prescribed Medications Clinical Practice Guidelines.
- Medication compliance should be reviewed and emphasized with the patient during clinical encounters.
- Education specific to managing symptoms of schizophrenia should be provided to the patient during clinical encounters.

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Chronic Kidney Disease

Introduction

Chronic Kidney disease (CKD) is associated with significant healthcare costs, morbidity, and mortality. Because CKD can silently progress to advanced stages, early detection is critical so that interventions can be implemented. Screening for CKD is recommended in patients with risk factors, including those with diabetes mellitus, hypertension, and cardiovascular disease.

Definition

CKD is defined as one of the following for three or more months:

- Decreased kidney function (estimated glomerular filtration rate [eGFR] <60 mL/min/1.73 m^2)
- The presence of kidney damage (urinary albumin excretion of 30mg/day or more)

Complications of CKD

CKD is associated with a higher risk of cardiovascular disease, end-stage kidney disease, infection, malignancy, and mortality.

CKD may progress to severe CKD, which is defined as an eGFR <30 mL/min/1.73 m^2.

Complications of worsening renal function include volume overload, hyperkalemia, metabolic acidosis, and hyperphosphatemia.

End-Stage Renal Disease (ESRD)

ESKD is defined as an eGFR <15 mL/min/1.73 m^2

Abnormalities related to hormonal or systemic dysfunction may include anorexia, nausea, vomiting, fatigue, hypertension, anemia, malnutrition, hyperlipidemia, and bone disease.

Patient Assessment

A physical exam should be targeted to identify the following potential abnormalities:

- Edema, in the case of volume overload
- Fundoscopic exam, to evaluation for arteriovenous nicking or retinopathy
- Abdominal bruit, in the case of renal artery stenosis
- Abnormal distal pulses, in the case of renal artery stenosis
- Enlarged kidneys, in the case of polycystic kidney disease
- Peripheral neuropathy, associated with diabetic microvascular disease
- Rashes or skin lesions, associated with vasculitis
- Skin thickening and hardening, associated with scleroderma

Diagnostic Studies

Diagnostic study recommendations are outlined in the Correctional Health Considerations section below.

Approach to Management

- Reversible ("acute on chronic") causes of CKD should be addressed, including:
    - Treatment of hypovolemia, hypotension, infection (e.g., sepsis)
    - Avoidance of nephrotoxic drugs (e.g., nonsteroidal anti-inflammatory drugs [NSAIDS])
    - Medication adjustments for patients with impaired renal excretion
    - Treatment of urinary tract obstruction (e.g., prostatic disease)
- Slowing the progression of kidney disease, including:
    - Blood pressure control (Hypertension is present in 85 percent of patients with CKD)
    - Glycemic control in patients with diabetes mellitus
    - Treatment of proteinuria (defined as albuminuria 300mg/day or more) with an angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB)

Nephrology referral

A referral to a nephrologist is recommended for patients with one or more of the following:

- An estimated glomerular filtration rate (GFR) of <30 mL/min/1.73 m^2
- Persistent urine albumin/creatinine ratio >300mg/gram
- If there is evidence of rapid loss of kidney function
- Transplant recipients taking immunosuppressant medications

One of the reasons for a nephrology referral is to begin a discussion about kidney replacement therapy (e.g., hemodialysis) in certain patients. The nephrologist will provide guidance on the timing of preparation for hemodialysis, including obtaining vascular access (e.g., placement of a tunneled hemodialysis catheter or arteriovenous [AV] fistula).

Correctional Health Considerations

- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.
- Diagnostic testing for patients with chronic kidney disease:
    - Baseline lab testing- complete blood count (CBC), comprehensive metabolic panel (CMP), thyroid-stimulating hormone (TSH), urinalysis (UA), and urine albumin-to-creatinine ratio test (mg/gram)
    - Baseline radiology testing- kidney ultrasound at the time of initial diagnosis of CKD
    - Every 90 days- CBC, CMP
    - Additional lab testing may be recommended in patients who are referred to a nephrologist
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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Seizure Management

Introduction

Correctional health staff are likely to encounter patients with seizure disorders within the course of their work. The purpose of this clinical guideline is to provide a resource to allow for the standardized care of patients who present with seizures.

A seizure may be due to epilepsy or an underlying disease process. Not all seizures are an indication that a patient has epilepsy. This guideline will outline the approach to patients presenting with seizures and seizure-like activity. It will also provide chronic care monitoring parameters for patients with epilepsy.

Definitions

Epilepsy: A central nervous system disorder in which nerve cell activity in the brain becomes disrupted. This can lead to seizures or periods of unusual behavior, sensations and sometimes loss of consciousness.

Epileptic Seizure: A neurological condition that is comprised of three components: a distinct onset and offset, clinical signs, and abnormal synchronous electrical activity of the brain.

Nonepileptic Seizure: A condition that presents with transient duration of symptoms but without electrical disturbances in the brain. This includes psychiatric conditions like panic attacks and psychogenic nonepileptic seizures.

Status Epilepticus: A seizure that is prolonged, or a series of seizures during which a patient does not regain consciousness. It is a medical emergency. Medical intervention is necessary if a seizure lasts more than 5 minutes.

Seizure Classification

Generalized seizure – A type of seizure in which the whole brain is affected by abnormal electrical disturbances and the patient becomes unconscious of his/her surroundings.

Types of generalized seizures include:

- Motor (Tonic-clonic – ‘grand mal’, tonic, atonic, clonic, myoclonic)
- Nonmotor (Absence – ‘petit mal’)

Focal (Partial) seizure – Abnormal electrical activity is localized to one part of the brain, affecting only one part of the body.

- Aware
- Impaired awareness
- Unknown awareness

Seizure Management Goals

The goals in management of patients with a seizure disorder include controlling seizures, avoiding treatment side effects, and maintaining quality of life.

It is appropriate to refer a patient to a neurologist when establishing a diagnosis in patients who present with new onset seizures, as well as if there is a doubt about the patient's diagnosis or if the seizures are difficult to manage.

Patient Evaluation

History and physical should focus on:

- Events leading up to the seizure-like activity
- Number of seizures in the past 24 hours
- Length and description of the seizure
- Focal aspects (i.e., unilateral movements, eye deviation, head turning to one side)
- Identification of urinary or fecal incontinence
- Identification of physical injuries (i.e., head trauma, bleeding from the mouth)
- Identification of any postictal confusion
- Identification of any substance use

Pertinent ***negative*** findings are important at differentiating an epileptic seizure from a nonepileptic episode:

- Was the seizure witnessed?
- Lack of incontinence/tongue biting/postictal confusion
- Response to physical stimulation during the episode (i.e., gentle touch to the patient's eyelid)
- These negative findings should be documented in the patient's health record

Seizure Triggers

- Lack of compliance with medications
- Emotional stress (i.e., stress of incarceration, breakdown in personal relationships, bad news regarding a court case)
- Sleep deprivation
- Visual, olfactory, and auditory stimuli
- Missed meals

Diagnostic Testing

A diagnostic workup may include brain imaging, laboratory testing, and an electroencephalography (EEG). All the workups should be guided by the patient's clinical presentation with supervision from specialty services when indicated.

When seizure medications are indicated, medication levels may need to be monitored to evaluate for possible toxicity and therapeutic levels, as well as monitoring of blood counts and liver enzymes.

Treatment

A patient presenting with a first seizure (i.e., no known seizure disorder) should be transferred to the emergency department via emergency medical services (EMS) for further evaluation.

When a patient presents during the intake process with a history of a seizure disorder, the prescriber should continue a patient's current regimen.

- Medical providers should become familiar with prescribing antiseizure medication (ASM) therapy, including monitoring parameters, side effects, and drug-drug interactions.

- Use of prescribing websites, like epocrates.com, is recommended for identifying drug-drug interactions.
- ASMs are generally given as DOT (direct observed therapy).

After a single seizure, immediate ASM therapy is generally not indicated. ASM treatment is typically started after two or more unprovoked seizures, under the guidance of a neurologist.

Pregnancy- For patients who are pregnant, consultation with a neurologist and obstetrician specialist should be done.

HIV patients- Since antiretroviral drugs have known interactions with ASM therapy consultation with neurology and infectious disease shall be considered when managing epilepsy patients with HIV.

Patients with psychiatric disorders (e.g., bipolar disorder) - Several ASMs are routinely used for the treatment of mood disorders. It is important to communicate with the psychiatric providers when making treatment decisions about medications that may be used to treat epilepsy and a psychiatric condition.

Correctional Health Considerations

- Patients with a seizure disorder should be assigned to a lower bunk.
- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.
- Diagnostic testing for patients on ASM therapy:
    - Baseline- complete blood count (CBC), comprehensive metabolic panel (CMP), medication level (e.g., phenytoin level)
    - Every 90 days- CBC, CMP, medication level
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Education should be provided to the patient at the time of the chronic care visit.
- Discharge planning
    - Arizona law requires that a patient be seizure-free for 90 days in order to be eligible to drive. The patient must be cleared to drive by a medical professional.
    - Women of childbearing age should be counseled that ASMs may lower the efficacy of hormonal contraceptives and should be counseled on alternative birth control measures.

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Chronic Pain

Introduction

Chronic pain is defined as that which lasts longer than three to six months, or beyond the duration required for normal tissue healing after an acutely painful event. Chronic pain results from combined biologic, psychological, and social factors, and most often requires a multifactorial approach to evaluation and management.

Pain is an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage. Common causes of chronic pain include low back pain, joint pain, severe headache or migraine, neck pain, and facial ache or pain.

When an acutely painful condition persists beyond the usually expected 6-to-12-week time course for most healing from disease or injury, it has transitioned from acute to chronic pain. Factors that contribute to chronic pain include medical causes, psychological factors (including pre-existing disorders of mood and cognition), or social factors. Personal or family social issues and economic disruptions, preceding physical or social neglect, sexual or substance abuse, and other adverse or traumatic life events, like incarceration, may all affect pain perception.

Managing chronic pain in a correctional environment presents unique challenges. Pharmacologic treatments that are utilized in the community may be prone to misuse and diversion in the correctional setting. The purpose of these guidelines is to provide health professionals in the correctional setting general parameters to deliver high-quality, evidence-based care to the inmate-patient population while also working to ensure the safety of all inmates.

A comprehensive multidisciplinary approach should be employed for all patients who present with chronic pain. This approach may include treatment by medical providers, psychiatric providers, mental health counselors, and physical therapy. A primary-care centric approach is appropriate in most cases. When diagnostic testing and specialty referrals are indicated, they should be utilized according to evidence-based guidelines. Not all medications that a patient may have been taking prior to incarceration are indicated in a correctional setting, due to side effects, lack of proven clinical efficacy in peer-reviewed publications, and/or due to the risk of misuse or diversion. A comprehensive approach should be utilized to ensure that patients receive comprehensive, evidence-based treatment of their chronic pain.

Types of Pain

Nociceptive pain — Nociceptive pain is caused by stimuli that cause tissue damage. It is expected after surgical procedures and acute traumatic injury. It is also associated with a range of conditions that involve inflammatory, ischemic, infectious, or mechanical/compressive injury. Chronic pain may occur with degenerative, inflammatory, and neoplastic diseases.

Neuropathic pain — Neuropathic pain results from a maladaptive response to damage or pathology of the somatosensory nervous system. One-third of patients with peripheral neuropathy have neuropathic pain. Early peripheral neuropathy may present as sensory alterations that are often progressive, including sensory loss, numbness, pain, or burning sensations in a “stocking and glove” distribution of the extremities. Later stages may involve proximal numbness, distal weakness, or atrophy. Neuropathic pain can occur in the absence of active noxious stimulus, or as an exaggerated response to minor or moderate nociceptive stimulus.

Causes of neuropathic pain are multiple and varied, and include peripheral (e.g., painful diabetic neuropathy, postherpetic neuralgia, nerve trauma, autoimmune disorders) and Central Nervous System (CNS) sites of initial injury or disease (e.g., stroke or spinal cord injury, multiple sclerosis, phantom limb pain, trigeminal neuralgia).

The Multifactorial Nature of Chronic Pain

Pain is experienced in developmental, social, and emotional contexts. Whether pain is acute or chronic, it is a biopsychosocial phenomenon, and when pain has become chronic its management typically requires multidimensional structured assessment and treatment. Negative emotions and expectations, such as fear and catastrophizing about the impact of pain on the patient's daily functioning can amplify the perception of pain.

A patient-clinician interaction that creates a positive and healing therapeutic relationship can improve treatment compliance, engagement, and outcome response. The psychophysiologic placebo response can be effective therapy for patients with chronic pain, as it is for much of medicine, particularly if the patient and clinician develop a long-term relationship. In the prison healthcare environment, developing a therapeutic relationship between the treatment team and patient can result in good outcomes, through clear communication of policies, consistency of practice patterns, and regular follow up visits.

Patient Evaluation

A detailed history should be obtained, including medical and psychiatric history, social and family history, and prior therapies for chronic pain treatment (both pharmacologic and non-pharmacologic).

The physical examination should include a comprehensive neurologic examination, testing of the cranial nerves, assessment for muscle fasciculation (often evident in the tongue), and evaluation of muscle bulk and tone.

Laboratory evaluation- Initial testing in patients with suspected peripheral neuropathy should include a complete blood count, comprehensive metabolic profile, and fasting blood glucose, thyroid-stimulating hormone, and vitamin B_{12} levels.

Imaging studies — Imaging with a plain radiograph is useful if a specific site of bone or joint pain related to an injury or disease is not clearly diagnosed by history and physical exam, or if surgery or an interventional procedure such as a joint injection is contemplated. However, routine radiographs without a specific diagnostic or therapeutic target are not indicated.

It is well recognized that magnetic resonance imaging (MRI) of the spine may identify pathology of uncertain significance, without clear correlation with clinical severity or outcomes. Therefore, an MRI should not be pursued unless there are clear indications. It is important to communicate to the patient that abnormal, "degenerative" MRI findings may be quite normal for the patient's age, in order to prevent worrisome notions and catastrophizing thoughts of danger and risk that worsen rather than improve pain management.

Electrodiagnostic testing — Electrodiagnostic testing (e.g., nerve conduction studies) may be useful to define a compressive focal neuropathy (i.e., radiculopathy), a peripheral nerve (e.g., carpal tunnel), or to determine if neuropathic pain is caused by a sensory polyneuropathy (e.g., diabetic neuropathy). Before ordering such a study, which can be painful, consider whether the study will contribute meaningfully to the clinical diagnosis and treatment plan. One retrospective study of patients with symmetrical distal polyneuropathy found that electrodiagnostic studies changed the diagnosis or management in only two of 368 patients. Studies also show that electrodiagnostic tests have low utility as part of initial workup. Given these findings, electrodiagnostic studies are not routinely indicated.

Frequently, peripheral neuropathy can be detected on examination and the diagnosis of diabetes, pre-diabetes, or vitamin deficiencies can be made with routine clinical laboratory testing while avoiding electrodiagnostic testing. However, patients should be referred for electrodiagnostic studies if symptoms are worrisome (e.g., acute onset, asymmetrical, predominantly motor or autonomic symptoms, rapidly progressive clinical course) or if initial workup is normal and symptoms persist.

Treatment of Chronic Pain

Patients with chronic pain require ongoing evaluation, education, and reassurance, as well as help in setting reasonable expectations for response. Current chronic pain treatments often result in improvement but not elimination of pain (30 percent reduction on average is typical). However, even a 30 percent pain reduction can be meaningful in improving quality of life and function, particularly when achieved incorporating motivational interviewing and pain neuroscience education.

Multidisciplinary Approach to Chronic Pain Treatment

Chronic pain should be treated in the primary care setting, with collaborative multidisciplinary planning and support. The team ideally includes a medical provider, a mental health counselor, and a physical therapist. Education is a key component of physical therapy and may improve pain control. In addition, many of the psychological approaches for chronic pain (e.g., cognitive behavioral therapy, mindfulness-based stress reduction, relaxation therapy, and psychotherapy) incorporate educational components.

The Foundation of Pain Management is Nonpharmacologic Therapy

Effective non-drug modalities include self-management education, behavioral health support, and physical rehabilitation therapies. Patients with chronic pain are expected to engage in nonpharmacologic therapy, and documentation of these interventions should be documented in the patient's medical record.

Interventional Treatment of Chronic Pain

Interventional approaches, which typically attempt to target the presumed pain generators, may play a complementary role to other strategies. The best candidates for interventional management have persistent focal pain of shorter duration, appropriate expectations, and well-managed psychosocial distress. Patients with the opposite characteristics may have poorer response or even worsening pain. When referring a patient for interventional treatment of chronic pain, outlining a patient's pain history, treatment modalities attempted, imaging results, and psychosocial stability is important.

Pharmacologic Treatment of Chronic Pain

Effective treatment of pain requires multimodal analgesia with an emphasis on non-drug modalities (e.g., self-management, behavioral health support and physical therapy). When necessary, pharmacologic therapies may be implemented. The choice of pharmacologic therapy depends on the type of chronic pain syndrome. In particular, neuropathic pain should be distinguished from nociceptive pain since treatments differ.

For patients with nociceptive pain, the choice of pharmacologic therapy depends partly on the location of the pain, and also on patient comorbidities. Oral or topical nonsteroidal anti-inflammatory drugs (NSAIDs) are the first-line therapy for many chronic nociceptive pain conditions. If usual treatment is ineffective for patients who are thought to have predominantly nociceptive pain, it could be presumed that the patient has neuropathic pain and treatment should be changed.

For most patients with chronic neuropathic pain, initial treatment involves antidepressants (i.e., tricyclic antidepressants [TCAs] or serotonin norepinephrine reuptake inhibitors [SNRIs]), with adjunctive topical therapy (e.g., topical lidocaine, 8% capsaicin patch) when pain is localized. When a medication is being considered for long term treatment of chronic pain, SNRIs are preferred over TCA's, gabapentin, and pregabalin for incarcerated patients.

Gabapentin and pregabalin may be utilized for neuropathic pain on a case-by-case basis after other treatment modalities have been tried to their full extent without a demonstrable clinical improvement. Gabapentin and pregabalin are prone to diversion and misuse in the correctional setting. Therefore, the use of these medications should be limited to inmate-patients who have a compelling indication. In addition, the dose of these medications will be limited, in order to mitigate the high propensity for these medications to be misused.

Opioids should be used on a chronic basis only in patients who are assessed to be at low risk for substance abuse, who have persistent pain despite trials of nonopioid analgesics and antidepressants or antiepileptics, and in whom the potential benefits outweigh the risks. Opioids should always be combined with nonpharmacologic and often nonopioid pharmacologic therapy, and be carefully monitored for benefit, risk, and treatment adherence. Given the high rate of substance use disorder in the incarcerated population, and the risk of medication diversion (which could result in safety and management concerns), opioid use is considered for non-cancer pain only in rare cases.

Adjuvant medications including topical lidocaine or capsaicin may be beneficial in some patients. Muscle relaxants (e.g., tizanidine, cyclobenzaprine, carisoprodol) and benzodiazepines in patients with chronic pain should be avoided.

Communication Between Medical and Psychiatric Providers

When considering an SNRI or TCA prescription, medical providers should consult with the psychiatric provider for treatment of patients with comorbid psychiatric disorders, since the addition of a mood-altering agent can affect the patient's overall treatment plan.

Communication should also occur between the medical and psychiatric provider if a medication with a dual indication for chronic pain and a psychiatric condition is being considered for discontinuation.

Medications that are Not Recommended

Muscle relaxants- This class of medications included methocarbamol, metaxalone, and carisoprodol. These drugs should be avoided for patients with chronic pain. A wide variety of pain conditions may be accompanied by painful muscles, and at times spasm. However, there is no evidence that these medications directly relax muscles. Muscle relaxants have diverse pharmacologic actions, but none of them act directly on muscle itself. Pain relief and relief of spasm without spasticity is likely related to CNS effects, including sedation, rather than analgesic effects.

Benzodiazepines- Benzodiazepines should be avoided in the treatment of chronic pain, including those with anxiety or post-traumatic stress disorder. Benzodiazepines are not first-line anxiolytics or sleep aids and there is no evidence of analgesic efficacy for chronic pain. Disadvantages include their abuse and addictive potential, and importantly, potentiation of respiratory depression and an increase in all-cause mortality with concomitant opioid use.

2022 CDC Clinical Practice Guidelines

The Centers for Disease Control and Prevention (CDC) published updated guidelines in 2022 on prescribing opioids for pain.

This guidance provides recommendations on:

- Individualized patient care
- Safe and effective pain management options
- Communication between clinicians and patients for shared decision-making
- Reducing adverse events associated with opioid pain therapy

The CDC guidelines do not apply to the treatment of pain under the following circumstances:

- Pain management related to sickle cell disease
- Cancer-related pain treatment
- Palliative care

- End-of-life care

Correctional Health Considerations

- The foundation of chronic pain management is nonpharmacologic therapy.
- Patients on medications for chronic pain should be seen at appropriate intervals to monitor their condition and manage their medications, including potential adverse reactions.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- Follow up intervals of more than 90-days are not clinically justifiable for chronic pain management.
- Patient education and setting of expectations is essential in the treatment of chronic pain.
- A focus on objective findings and functional status is important for ensuring consistency in the treatment of all inmate-patients.
- When diagnostic testing and specialty referrals are indicated, they should be ordered based on evidence-based guidelines.
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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Clinical Preventive Services

The purpose of offering preventive healthcare is to lessen future health decline. In addition to the treatment of a patient's known current illness, preventive care is an essential component of comprehensive healthcare delivery.

Periodic Preventive Health Visits

All inmate-patients should be offered a preventive visit annually. Prioritization of screening and prevention interventions should be individualized based on patient-specific factors, including age, gender, medical and mental health conditions, and other factors.

The risks and benefits of clinical interventions should be discussed in a manner that the patient can understand, for them to make a well-informed decision.

Harms of Screening

Harms associated with screening include anxiety produced by false-positive results, harms from diagnostic testing, and overdiagnosis of conditions that may be treated but don't affect a patient's overall health outcome. In addition, the benefits of screening may decrease as patients get older.

Cardiovascular Disease Prevention

Modifiable cardiovascular risk factors include diet, smoking, hypertension, dyslipidemia, obesity, physical activity, and diabetes mellitus.

Patients should be provided with education by health staff regarding one or more modifiable risk factors during health encounters. Any patient encounter is an opportunity for health staff to engage in patient education.

When a patient is diagnosed with hypertension, hyperlipidemia, diabetes mellitus, or heart disease, a chronic care flag should be added to their medical record and a provider visit should be scheduled.

Cancer Prevention

Modifiable risk factors for cancer prevention include smoking, physical activity, obesity, and excess sun exposure. Patients should be provided with education about these factors during health visits.

Cancer Screening

Breast cancer- The major risk factors for breast cancer in women are age, family history, and estrogen exposure.

- Screening for average-risk individuals is recommended to start at age 50.
- Some patients may start screening before age 50, based on individual risk factors.
- Mammography should be performed based on shared decision making between the provider and the patient after a discussion of the risks and benefits of screening.
- Mammography is generally continued if a patient has a life expectancy of 10 years.

Cervical cancer- Cervical cancer screening is recommended for patients with a cervix between the ages of 21 and 65.

- Age-specific guidelines (for ages 21-29, 30-65, and older than 65) are available in the United States Preventive Services Task Force (USPSTF) link in the Reference section.
- Cervical cancer screening is generally continued if a patient has a life expectancy of 10 years.

Colorectal cancer- The age of screening initiation varies based on an individual's level of risk.

- For patients with no risk factors, screening is recommended to begin at age 45.
- The recommended interval of screening varies depending on the screening strategy.
- According to the USPSTF, a colonoscopy every 10 years allows the longest time between screenings and is the definitive test if abnormalities are identified on other types of tests.
    - Colonoscopy is therefore the preferred form of colorectal cancer screening for this population.
- Colorectal cancer screening is generally continued if a patient has a life expectancy of 10 years.

Prostate cancer- Prostate cancer screening should be individualized based on an informed discussion between the provider and patient.

- For average-risk patients, the discussion about screening should begin at age 50.
- For higher-risk patients (e.g., African American patients and those with a family history of prostate cancer), the discussion should begin between age 40 and 45.

Immunization – Immunization effectively prevents disease. Immunizations should be offered to patients in accordance with the Advisory Committee on Immunization Practices (ACIP) recommendations.

Recommended vaccines include:

- Influenza vaccine- Recommended for all adults
- COVID-19 vaccine- Recommended for all adults
- Tetanus, diphtheria, and acellular pertussis (Tdap)
    - Recommended for all adults
    - A booster should be given every 10 years
    - Females should receive a Tdap with each pregnancy
- Pneumococcal vaccines
    - Recommended for all adults who have a condition that increases risk of pneumococcal disease (e.g., alcohol use disorder, chronic heart disease, chronic lung disease, chronic liver disease, diabetes mellitus, current cigarette smoking, human immunodeficiency virus (HIV), chronic kidney disease, leukemia, lymphoma)
    - Recommended for all adults aged 65 and older
- Hepatitis A and B vaccination- Recommended for patients who are at high risk for acquiring hepatitis B or C infection (e.g., HIV, chronic hepatitis C, chronic liver disease, injection drug use)

Osteoporosis

Osteoporosis screening is recommended in the following groups:

- All women aged 65 and older
- Postmenopausal women age <65 with risk factors for osteoporosis
- Men with low bone mass, a history of low trauma fracture, or risk factors for fracture (e.g., antiandrogen therapy)

Correctional Health Considerations

- Every patient encounter is an opportunity to engage in education about modifiable risk factors and preventive measures.
- Preventive medical and dental care is available to all inmate-patients and services should be offered annually.
- Cancer screening should be offered to all patients based on age and risk factors.

- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.
- Immunizations should be offered to patients in accordance with the Advisory Committee on Immunization Practices (ACIP) recommendations.

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Asthma

Introduction

Asthma is a common chronic inflammatory disorder of the airways. It may develop at any age but is generally diagnosed in childhood. The inflammation causes recurrent episodes of wheezing, breathlessness, chest tightness, and coughing. These episodes are usually associated with widespread but variable airflow obstruction that is often reversible either spontaneously or with treatment.

History

A patient typically presents with a history of respiratory symptoms following exposure to a trigger (e.g., allergen, exercise, viral infection), which resolved with trigger avoidance or asthma medication.

Patients will present with one or more of the following symptoms:

- Wheeze (high pitched sound on exhalation)
- Cough (often worse at night)
- Shortness of breath
- Chest tightness

Physical Examination

The physical examination may be normal in patients with asthma. If wheezing is identified, it is typically composed of multiple high-pitched sounds that are audible mostly during expiration.

A nasal examination conducted with an otoscope may identify pale, swollen mucosa associated with allergic rhinitis. Nasal polyps may also be present, with raises the possibility of aspirin-exacerbated respiratory disease.

Evaluation

- Pulmonary function testing is useful in the diagnosis of asthma.
    - Spirometry measures the forced expiratory volume in one second (FEV1) and the forced vital capacity (FVC).
        - This testing determines if there is baseline obstruction, assesses the reversibility of the obstruction (after bronchodilator administration), identifies the severity of the airflow limitation, and may identify other etiologies of the patient's symptoms (e.g., restrictive disease).
    - Peak expiratory flow (PEF) measures a brief, forceful exhalation of air.
        - It is used in patients who have a known diagnosis of asthma, rather than as a diagnostic tool.
- Laboratory tests- A complete blood count (CBC) can be helpful to exclude alterative diagnoses.
- Imaging- A chest x-ray is not needed for the diagnosis of asthma. However, it may be ordered when a patient has an atypical presentation of asthma (e.g., abnormal findings on lung exam or new onset asthma in adults over the age of 40.

Goals of Treatment

Optimal control of asthma symptoms is equated to reducing the intensity and frequency of asthma symptoms while striving to maintain normal activity levels.

Specific goals include:

- Avoiding asthma symptoms (cough, chest tightness, wheezing, or shortness of breath)
- Few night-time awakenings due to asthma (≤2 nights per month)
- Minimize the need to utilize rescue inhalers (≤2 nights per week)
- Optimized lung function
- Participation in normal daily activities

Patient Education

An asthma action plan should be discussed with patients during chronic care visits and other clinical encounters.

- The discussion should include recognition of asthma triggers and worsening symptoms, and when to seek care.
- A well-informed and engaged patient can proactively manage their own asthma care, in partnership with health staff.
- Smoking cessation should be a regular component of patient education.

Asthma Severity

Asthma severity is determined by a number of factors, including airway hyperresponsiveness and predisposition to allergy ("atopy"), environmental factors (e.g., irritants, viral exposures, allergens), and comorbidities (e.g., obesity, chronic rhinosinusitis).

The following classification system is based on the National Asthma Education and Prevention Program: Expert Panel Working Group (NAEPP 2020):

- Intermittent asthma/step 1
- Mild persistent asthma/step 2
- Moderate persistent asthma/step 3
- Severe persistent asthma/steps 4 to 6

NAEPP 2020 provides a stepwise approach to treatment recommendations, which correlate with the Global Initiative for Asthma (GINA).

Pharmacologic Therapy

- Quick-relief medication- All patients with asthma should have access to an inhaled bronchodilator to provide rapid symptoms relief.
    - The preferred approach is a short-acting beta agonist (SABA)
    - An alternative approach is to use a combination low-dose glucocorticoid + long-acting beta agonist (LABA) inhaler
- Controller medication- Initial maintenance therapy is started based on the severity of symptoms; further adjustments are based on the degree of asthma control.
    - Controller medications include the following:
        - Inhaled corticosteroids (ICS)
        - ICS-LABA combination
        - ICS plus long-acting muscarinic antagonist (LAMA)
        - Leukotriene receptor antagonist (LTRA), alone or in combination with other medications
            - The efficacy of LTRAs is generally less than ICSs.

Patient Monitoring

Management of asthma should be proactive, with a focus on symptom prevention. Chronic care visits should focus on the following:

- Symptom assessment
- Evaluation of pulmonary function
- Control of exposure to asthma triggers
- Treatment of comorbid conditions
- Medication adjustment when necessary, using the NAEPP or GINA stepwise regimens
- Patient education

Specialist Referral

A pulmonology referral should be considered for the following reasons:

- Uncertainty about the diagnosis of asthma
- Asthma symptoms are difficult to control
- An episode of near-fatal asthma
- The need for specialized diagnostic studies

Correctional Health Considerations

- Smoking cessation should be emphasized at each chronic care visit.
- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)
- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.
    - In order to change to 180 day intervals, a patient must have had "good control" at two consecutive visits.
- Diagnostic testing for patients with asthma:
    - Routine laboratory tests are not indicated in asthma patients
    - Baseline testing- spirometry if the diagnosis is uncertain
    - Baseline radiology testing- chest x-ray if the patient has atypical signs or symptoms
    - Peak flows- performed three times and recorded in the patient's medical record, at each chronic care visit
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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Chronic Obstructive Pulmonary Disease (COPD)

Introduction

Chronic Obstructive Pulmonary Disease (COPD) is a major cause of morbidity and mortality in the United States. It is estimated that approximately 10 percent of people aged 40 or older have COPD.

The Global Initiative for Chronic Obstructive Lung Disease (GOLD) defines COPD as a heterogeneous lung condition characterized by chronic respiratory symptoms due to abnormalities of the airway and/or alveoli that cause persistent, often progressive, airflow obstruction.

While the cause of COPD in the vast majority of patients is long-term cigarette smoking, it is important to consider other causes, including underlying asthma, workplace exposures, indoor use of biomass fuel (e.g., plant-based material), a prior history of tuberculosis, and alpha-1 antitrypsin deficiency.

Clinical Features

Presentations of COPD include patients with minimal complaints, those with daily respiratory symptoms (e.g., dyspnea on exertion or cough), and individuals with recurrent exacerbations (e.g., wheezing, cough, dyspnea, and fatigue).

Patients should be asked about current smoking status and the number of pack-years smoked.

Physical Examination

Physical exam findings may be normal in patients with mild COPD or may show only prolonged expiration or wheezes.

Patients with more advanced COPD may have signs of hyperinflation (e.g., increased resonance to percussion), decreased breath sounds, wheezes, crackles at the lung bases, or distant heart sounds.

Exam findings in patients with severe disease may include a barrel-shaped chest (increased anteroposterior diameter) and positioning to relieve dyspnea (leaning forward with arms outstretched).

Evaluation

Patients who have symptoms of dyspnea, chronic cough, or chronic sputum production should be considered for testing.

- Pulmonary function testing is useful in the diagnosis of COPD.
    - Spirometry measures the forced expiratory volume in one second (FEV_1) and the forced vital capacity (FVC).
        - This testing determines if there is baseline obstruction, assesses the reversibility of the obstruction (after bronchodilator administration), identifies the severity of the airflow limitation, and may identify other etiologies of the patient's symptoms (e.g., restrictive disease).

        - COPD is confirmed when a symptomatic patient is found to have irreversible airflow limitation (a post-bronchodilator FEV_1/FVC ratio <0.7).
    - Peak expiratory flow (PEF) measures a brief, forceful exhalation of air.
        - It is used in patients who have a known diagnosis of asthma, rather than as a diagnostic tool.
        - PEF may underestimate the degree of airflow limitation in COPD and is not specific for airflow limitation in COPD.
            - Therefore, PEF is not typically used for the monitoring of COPD clinical status.
    - Pulse oximetry is a noninvasive and simple method to assess blood oxygen saturation.
        - Assessment of oxygenation may be inaccurate during a COPD exacerbation.
    - Arterial blood gases (ABG) may be necessary in more severe cases of COPD or during exacerbations.
- Laboratory tests- Testing for alpha-1 antitrypsin (AAT) deficiency should be performed, with an AAT serum level and genotype.
- Imaging- A chest x-ray is typically performed to exclude other diagnoses, evaluate for comorbidities (e.g., lung cancer, heart failure), or to assess for COPD complications (e.g., pneumonia, pneumothorax).
    - A computed tomography (CT) of the chest may be necessary in some cases.

Differential Diagnosis

The differential diagnosis of COPD includes the following:

- Asthma
- Chronic bronchitis with normal spirometry
- Central airway obstruction
- Bronchiectasis
- Heart failure
- Tuberculosis

Goals of Treatment

The goals of COPD treatment are to:

- Improve patient outcomes
- Decrease exacerbations
- Improve patient function and quality of life

Therapy should be guided by disease severity and the risk of future exacerbations. Adjustments to medications are made based on a patient's response to treatment.

The mainstay of COPD treatment is the use of inhaled bronchodilators (e.g., beta agonists and muscarinic antagonists). These medications may be given alone or in combination with inhaled glucocorticoids.

Long-term, continuous oxygen therapy is recommended when the pulse oxygen saturation (SpO2) is ≤88 percent.

- Clear benefits of long-term oxygen therapy have not been identified in patients with moderate hypoxemia at rest (e.g., SpO2 89-93 percent) or with exertion (e.g., SpO2 <90 percent).

Pharmacologic Therapy

The GOLD ABCD assessment and risk of exacerbation is as follows:

- Group A (Low risk- less symptomatic)
    - As needed short-acting bronchodilator:
        - Short-acting beta agonist (SABA)
        - Or short-acting muscarinic antagonist (SAMA)
        - Or combination of SABA-SAMA

- Group B (Low risk- more symptomatic)
    - Regular treatment with a long-acting bronchodilator:
        - Long-acting muscarinic antagonist (LAMA)
        - Or long-acting beta agonist (LABA)
        - And SABA for symptom relief, as needed
- Group C (High risk- less symptomatic)
    - Regular treatment with LAMA
    - And SABA for symptom relief, as needed
- Group D (High risk- more symptomatic)
    - Regular treatment with LAMA
    - Or combination of LAMA + LABA if severe breathlessness
    - A glucocorticoid-LABA inhaler may be preferred (if asthma/COPD symptoms overlap)
    - And SABA for symptom relief, as needed

COPD Exacerbations

COPD exacerbations are characterized by an acute increase in symptoms (e.g., cough, sputum production, dyspnea) that necessitates a change in medication. Supplemental oxygen may be needed and should be titrated to a target of 88 to 92 percent oxygen saturation.

Treatment options depend on the patient's clinical status and include short acting bronchodilators, systemic glucocorticoids, antibiotics, antiviral agents, and ventilatory support (when needed).

Patient Monitoring

During chronic care visits, patients should be assessed for symptom control and medication compliance, including any barriers to treatment implementation (e.g., perceived lack of benefit, medication side effects, difficulty remembering).

Patient education should include guidance on correct inhaler technique, smoking cessation, and regular physical activity.

Specialist Referral

A pulmonology referral should be considered for the following reasons:

- Uncertainty about the diagnosis of COPD
- COPD symptoms are difficult to control
- Comorbidities are present that may interfere with the assessment of airway disease
- The need for specialized diagnostic studies or possible interventions

Correctional Health Considerations

- Smoking cessation should be emphasized at each chronic care visit.
- All patients with chronic conditions should have the applicable chronic care flags added to their chart.
- Frequency of follow up visits for chronic conditions should be ordered as follows:
    - Poor control- 30 days (e.g., needing a medication change or addition; abnormal vital signs and/or uncontrolled symptoms)
    - Fair control- 60 days (e.g., needing a medication change or addition; stable vital signs and symptoms)
    - Good control- 90 days (e.g., no change in medication; stable vital signs and symptoms)

- A follow up visit may take place for well-controlled patients at longer intervals (e.g., 180 days) for conditions that are well controlled. In these situations, the justification for decreased visit frequency must be documented in the patient's medical record and not exceed a 6-month interval between chronic care visits.

    - In order to change to 180 day intervals, a patient must have had “good control” at two consecutive visits.
- Diagnostic testing for patients with COPD:
    - Baseline lab testing- for alpha-1 antitrypsin deficiency
    - Baseline testing- spirometry if the diagnosis is uncertain
    - Baseline radiology testing- chest x-ray to exclude other diagnoses
- Medication compliance should be reviewed and emphasized with the patient at chronic care appointments.
- Immunizations should be up to date, as outlined in the Clinical Preventive Services Clinical Practice Guidelines.
- Education should be provided to the patient at the time of the chronic care visit.

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