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Arthritis

Introduction

According to information presented by the Centers for Disease Control and Prevention (CDC), arthritis affects approximately one in four adults in the U.S. Therefore, health care professionals should possess insight into arthritis care to best serve patients in need. This course will review concepts central to arthritis care, while providing insight into options that may be used to manage arthritis.

Section 1: Arthritis

Case Study

A 48-year-old male patient named Franco presents to a health care facility with complaints of toe pain. Upon questioning from a health care professional, Franco reports that he "woke up with extreme pain" in his right "big toe." The health care professional asks Franco to rate his current pain on a scale from 1 to 10, with 10 meaning the worst pain possible. Franco gives his pain a rating of seven out of 10. Franco goes on to say that he "does not remember injuring" his "big toe, it just started hurting." A patient examination reveals that the patient is 6'1" and 240 lbs. As Franco steps on and off the scale, the health care professional notes that Franco is limping. Further questioning from the health care professional reveals that Franco is allergic to ibuprofen. The health care professional asks Franco what happens when he takes ibuprofen. Franco responds by saying, he "gets a stomach ache." Franco goes on to say that he is attempting to lose weight, and is trying a new diet that focuses on protein. Franco reports that he "eats a lot of red meat for protein." Franco also reports that he drinks four to six beers a week, but is trying to "cut back." Finally, Franco asks the health care professional for a "pain med."

The case study presented above involves arthritis care. Health care professionals should be familiar with concepts central to arthritis and arthritis care to best serve patients in need. This section of the course will highlight information related to

arthritis. The information found within this section of the course was derived from materials provided by the Centers for Disease Control and Prevention (CDC) unless, otherwise, specified (Centers for Disease Control and Prevention [CDC], 2022).

What is arthritis?

Arthritis may refer to joint inflammation; a condition characterized by joint inflammation.

Health care professionals should note that the joint inflammation associated with arthritis may lead to pain and stiffness.

What are the risk factors for arthritis?

- **Age** - one of the first risk factors that may come to mind when considering arthritis is age. Health care professionals should note the following: the risk for arthritis increases with age; older adults are at increased risk for arthritis; the term older adult may refer to an individual 65 years or older.
- **Genetics** - individuals born with specific genes (e.g., HLA (human leukocyte antigen) class II genotype) are more likely to develop arthritis.
- **Gender** - research presented by the CDC suggests that women are at increased risk for arthritis. Health care professionals should note that most types of arthritis are common in women.
- **Lack of physical activity** - a lack of physical activity is a risk factor for arthritis (note: the term physical activity may refer to any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level) (U.S. Department of Health and Human Services, 2018). Health care professionals should note that a lack of physical activity may lead to or contribute to a sedentary lifestyle, which may lead to weight gain or obesity (note: the term sedentary lifestyle may refer to an

inactive lifestyle characterized by extended periods of sitting or laying down, with little to no physical activity).

- **Overweight and obesity** - individuals who are overweight or obese are more likely to develop arthritis. Health care professionals should note the following: obesity may refer to a condition characterized by abnormal or excessive fat accumulation, which may impair health; the fundamental cause of obesity is an energy imbalance between the calories consumed and the calories expended; an individual may be considered to be obese when his or her body mass index (BMI) is greater than or equal to 30 kg/m^2; body mass index (BMI) may refer to a value derived from an individual's height and weight.

- **Infection** - bacteria and viruses can infect joints and potentially lead to arthritis.

- **Occupation and activities** - occupations and activities (e.g., weight lifting) that require repetitive movements may lead to arthritis.

- **Joint injury or physical trauma** - a joint injury or physical trauma may lead to arthritis (note: the term physical trauma may refer to an injury to the body).

- **Alcohol use** - alcohol use is associated with arthritis. Health care professionals should note the following: research presented by the CDC suggests that individuals who consume alcohol for an extended period of time are more likely than others to develop some types of arthritis.

- **Tobacco use** - tobacco use is associated with arthritis. Health care professionals should note the following: research presented by the CDC suggests that individuals who used/smoked tobacco for an extended period of time are more likely than non-smokers to develop arthritis.

- **A diet rich in purines** - a diet rich in purines, which the body breaks down into uric acid, is associated with some types of arthritis (note: purines may refer to chemical compounds in food that may lead to arthritis; uric acid may refer to a waste product found in the body). Health care professionals should note the following purine-rich foods: red meat, organ meat, anchovies, sardines, mussels, scallops, trout, and tuna.

- **Early life exposure** - research presented by the CDC indicates that early life exposures may increase the risk of developing some types of arthritis in adulthood. For example, one study found that children whose mothers smoked had double the risk of developing arthritis as adults.

- **History of live births** - women who have never given birth may be at greater risk of developing some types of arthritis.

- **Lupus** - lupus is associated with some types of arthritis (note: lupus may refer to an inflammatory disease that occurs when the immune system attacks its own tissues).

What are the signs/symptoms of arthritis?

- The signs/symptoms of arthritis include pain, redness, heat, and swelling in the joints, as well as stiffness and a loss of mobility and/or flexibility.

- Health care professionals should note the following: depending on the type of arthritis, symptoms can develop suddenly or gradually over time; arthritis symptoms may come and go, or persist over time.

How may patients present with symptoms of arthritis?

- Patients may present with a variety of arthritis symptoms (e.g., joint pain; stiffness). Also, patients may use different language or wording to describe their symptoms or state. When evaluating patients for arthritis, health care professionals should note any patient language that may describe

symptoms of arthritis. Examples of the type of language/wording patients may use to describe their symptoms may be found below.

- I am in pain.
- I have pain.
- My hands hurt.
- My back hurts.
- My lower back hurts.
- My hips hurt.
- My knees hurts.
- My joints feel warm.
- My body feels stiff.
- I feel stiff.
- I am stiff.
- I am having trouble moving.
- I cannot move as well as I used to.
- I am not as flexible as I used to be.

How is arthritis diagnosed?

Arthritis is typically diagnosed by reviewing symptoms, conducting a physical examination, and completing X-rays and lab tests. Health care professionals should note that it may be advantageous to a patient's health, overall well-being, and quality of life to diagnose arthritis early (e.g., within six months of the onset of

symptoms) so that patients with arthritis can begin treatment to slow, stop, and/or prevent arthritis progression and associated complications (e.g., damage to joints).

What are the types of arthritis?

- **Osteoarthritis (OA)** - osteoarthritis (OA) may be one of the first types of arthritis that comes to mind when considering arthritis. Osteoarthritis (OA) may refer to a type of arthritis characterized by degraded cartilage, changes in bone shape, inflammation, pain, stiffness, and loss of mobility. Specific information regarding OA may be found below.
    - OA is the most common type of arthritis.
    - OA is typically progressive - meaning it may become more destructive or impactful to the body over time.
    - OA is typically caused by damage or breakdown of joint cartilage between bones.
    - The specific risk factors for OA include: age, joint injury, physical trauma, overuse, obesity, genetics, and gender (note: women are more likely to develop OA than men, especially after age 50).
    - The specific signs/symptoms of OA include the following: pain, swelling, stiffness, and decreased range of motion (or flexibility).
- **Post-traumatic arthritis** - post-traumatic arthritis may refer to a type of OA characterized by stiffness and pain in the affected joints after an injury. Specific information regarding post-traumatic arthritis may be found below. The information found below was derived from materials provided by the Cleveland Clinic (Cleveland Clinic, 2021).

- Post-traumatic arthritis is often a temporary issue, and many individuals recover within months of injury; however, post-traumatic arthritis may become a chronic condition.
- Children and teens may suffer from post-traumatic arthritis.
- As previously mentioned, the cause of post-traumatic arthritis is injury (e.g., fall).
- The specific risk factors for post-traumatic arthritis include injury and physical trauma.
- The specific signs/symptoms of post-traumatic arthritis include the following: pain, swelling, stiffness, and tenderness.

- **Rheumatoid arthritis (RA)** - another type of arthritis that may come to mind when considering arthritis is rheumatoid arthritis (RA). Rheumatoid arthritis (RA) may refer to a chronic autoimmune disease that affects joints. Specific information regarding RA may be found below.
    - RA typically affects joints in the hands, wrists, and knees.
    - RA is caused by an immune response in which the body's immune system attacks its own healthy cells.
    - In a joint affected by RA, the lining of the joint becomes inflamed, leading to damage to joint tissue.
    - The tissue damage associated with RA can lead to chronic pain, a lack of balance, and deformity.
    - The specific risk factors for RA include: age, genetics, obesity, tobacco use, history of live births, and early life exposures.

    - The specific signs/symptoms of RA include the following: pain, swelling, stiffness, tenderness, weight loss, fatigue, and weakness.

- **Gout** - gout may refer to a type of arthritis characterized by severe pain, redness, and tenderness in a joint(s). Specific information regarding gout may be found below.

    - Gout usually affects one joint at a time (e.g., a big toe joint).

    - Gout is often characterized by gout flares, and times when there are no symptoms, known as remission (note: the term gout flare may refer to a period of time when the symptoms of gout become more intense, often leading to pain in the affected area).

    - Gout is caused by hyperuricemia (note: hyperuricemia may refer to a condition characterized by high levels of uric acid in the body). Health care professionals should note the following: the body produces uric acid when purines are broken down; when there are high levels of uric acid in the body, uric acid crystals (monosodium urate) can build up in joints, fluids, and tissues within the body; hyperuricemia does not always cause gout.

    - The specific risk factors for gout include: obesity, medications (e.g., diuretics), alcohol use, eating or drinking food and drinks high in fructose, diet rich in purines, and gender (note: men have a higher risk for gout).

    - The specific signs/symptoms of gout include intense pain, swelling, redness, and heat in the affected joint.

    - Individuals may have trouble walking when gout affects the big toe.

    - Health care professionals should note that there is no cure for gout.

- **Fibromyalgia** - fibromyalgia may refer to a condition characterized by widespread pain (i.e., pain all over the body), sleep problems, fatigue, emotional distress, and mental distress. Specific information regarding fibromyalgia may be found below.
    - Individuals with fibromyalgia tend to be more sensitive to pain than individuals without fibromyalgia.
    - The exact cause of fibromyalgia is unknown.
    - The specific risk factors for fibromyalgia include: age, gender, genetics, obesity, viral infections, repetitive injuries, lupus, and post-traumatic stress disorder (PTSD) (note: post-traumatic stress disorder [PTSD] may refer to a psychiatric disorder characterized by intense physical and emotional responses to thoughts and reminders of a traumatic event[s]) (National Institute of Mental Health, 2022).
    - The specific signs/symptoms of fibromyalgia include the following: widespread pain, stiffness all over the body, tingling or numbness in the hands and feet, face pain, jaw pain, jaw disorders (e.g., temporomandibular joint syndrome), sleep problems, headaches, migraines, abdominal pain, bloating, constipation, and problems with thinking, memory, and concentration.
- **Psoriatic arthritis (PsA)** - psoriatic arthritis (PsA) may refer to a type of arthritis characterized by chronic inflammation of the skin and joints, which causes pain. PsA often occurs alongside psoriasis. Specific information regarding PsA and psoriasis may be found below.
    - Psoriasis may refer to a chronic autoimmune skin disease characterized by accelerated skin cell growth.
    - Adults and children are at risk for psoriasis; men and women seem to have equal risk.

- Psoriasis may lead to patches of thick red skin and silvery scales.
- Psoriasis patches are typically found on the elbows, knees, scalp, lower back, face, palms, and soles of the feet; psoriasis may also affect other places, such as: fingernails, toenails, and the mouth.
- Health care professionals should note that the most common type of psoriasis is called plaque psoriasis.
- According to research presented by the CDC, psoriatic arthritis is an inflammatory type of arthritis that eventually occurs in 10% to 20% of people with psoriasis.
- Psoriasis and psoriatic arthritis are often linked together and referred to as psoriatic disease.
- The cause of psoriatic arthritis is related to psoriasis. Health care professionals should note that psoriatic arthritis is different from more common types of arthritis (e.g., osteoarthritis) and it is believed to be related to the underlying disease of psoriasis.
- The specific risk factors for psoriatic arthritis include psoriasis.
- The specific signs/symptoms of psoriatic arthritis include the following: pain, swelling, and stiffness.

- **Juvenile idiopathic arthritis (JIA)** - juvenile idiopathic arthritis (JIA) may refer to a type of arthritis that affects children and teens, which is characterized by joint pain and inflammation, typically, in the hands, knees, ankles, elbows, and/or wrists. Specific information regarding JIA may be found below.
    - Research presented by the CDC suggests that the cause of JIA may be related to the immune system.

- The specific risk factors for JIA include autoimmune or autoinflammatory concerns.
- The specific signs/symptoms of JIA include the following: joint pain, swelling, fever, stiffness, rash, fatigue, tiredness, loss of appetite, eye inflammation, and difficulty with daily living activities, such as: walking, dressing, and playing.
- Health care professionals should note that childhood arthritis can cause permanent physical damage to joints.
- Health care professionals should note that there is no cure for JIA.

Section 1 Summary

Arthritis may refer to joint inflammation; a condition characterized by joint inflammation. The risk factors for arthritis include: age, genetics, gender, a lack of physical activity, overweight/obesity, infections, occupations and activities (e.g., weight lifting), joint injury or physical trauma, alcohol use, tobacco use, a diet rich in purines, early life exposure, history of live births, and lupus. The types of arthritis include the following: OA, post-traumatic arthritis, RA, gout, fibromyalgia, PsA, and JIA. Health care professionals should work to identify patients with arthritis.

Section 1 Key Concepts

- The risk for arthritis increases with age.
- Women are at an increased risk for arthritis.
- Individuals who are overweight or obese are more likely to develop arthritis.
- The signs/symptoms of arthritis include pain, redness, heat, and swelling in the joints, as well as stiffness and a loss of mobility and/or flexibility.

- It may be advantageous to patients' health, overall well-being, and quality of life to diagnose arthritis early (e.g., within six months of the onset of symptoms) so that patients with arthritis can begin treatment to slow, stop, and/or prevent arthritis progression and associated complications (e.g., damage to joints).

Section 1 Key Terms

Arthritis - joint inflammation; a condition characterized by joint inflammation

Older adult - an individual 65 years or older

Physical activity - any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level (U.S. Department of Health and Human Services, 2018)

Sedentary lifestyle - an inactive lifestyle characterized by extended periods of sitting or laying down, with little to no physical activity

Obesity - a condition characterized by abnormal or excessive fat accumulation, which may impair health

Body mass index (BMI) - a value derived from an individual's height and weight

Physical trauma - an injury to the body

Purines - chemical compounds in food that may lead to arthritis

Uric acid - a waste product found in the body

Lupus - an inflammatory disease that occurs when the immune system attacks its own tissues

Osteoarthritis (OA) - a type of arthritis characterized by degraded cartilage, changes in bone shape, inflammation, pain, stiffness, and loss of mobility

Post-traumatic arthritis - a type of OA characterized by stiffness and pain in the affected joints after an injury

Post-traumatic stress disorder (PTSD) - a psychiatric disorder characterized by intense physical and emotional responses to thoughts and reminders of a traumatic event(s) (National Institute of Mental Health, 2022)

Gout - a type of arthritis characterized by severe pain, redness, and tenderness in a joint(s)

Gout flare - a period of time when the symptoms of gout become more intense, often leading to pain in the affected area

Hyperuricemia - a condition characterized by high levels of uric acid in the body

Psoriatic arthritis (PsA) - a type of arthritis characterized by chronic inflammation of the skin and joints, which causes pain

Psoriasis - a chronic autoimmune skin disease characterized by accelerated skin cell growth

Juvenile idiopathic arthritis (JIA) - a type of arthritis that affects children and teens, which is characterized by joint pain and inflammation, typically, in the hands, knees, ankles, elbows, and/or wrists

Section 1 Personal Reflection Question

Why is it important for health care professionals to identify patients with arthritis?

Section 2: Arthritis Management

Arthritis can impact the health, overall well-being, and quality of life of those affected. Fortunately, arthritis can be managed. This section of the curse will review the non-pharmacological and pharmacological options that may be used to

manage arthritis. The information found within this section of the course was derived from materials provided by the CDC unless, otherwise, specified (CDC, 2022).

- **Protect the joints** - joint injuries can worsen arthritis. Therefore, individuals with arthritis should protect their joints. To help prevent joint injuries, individuals should select activities that are easy on the joints, such as: walking, bicycling, and swimming. Health care professionals should note that the aforementioned low-impact activities have a low risk of injury, and do not twist or put excessive stress on the joints.

- **Physical activity** - physical activity may help reduce or prevent arthritis progression. Arthritis patients should receive physical activity recommendations, when applicable. Health care professionals should note the following physical activity recommendations: adults should move more and sit less throughout the day; some physical activity is better than none; adults who sit less and do any amount of moderate-to-vigorous physical activity gain some health benefits; for substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity; preferably, aerobic activity should be spread throughout the week (U.S. Department of Health and Human Services, 2018).

- **Diet** - diet, or more specifically a diet high in purines, can worsen or potentiate the symptoms of some types of arthritis (e.g., gout). Therefore, diet modifications may help manage arthritis. Arthritis patients should receive diet recommendations, when applicable. Health care professionals should note the following diet recommendations: from 12 months through older adulthood, individuals should follow a healthy dietary pattern across

their lifespan to meet nutrient needs, help achieve a healthy body weight, and reduce the risk of chronic disease; individuals should focus on meeting food group needs with nutrient-dense foods and beverages, and stay within calorie limits - nutrient-dense foods provide vitamins, minerals, and other health-promoting components and have little to no added sugars, saturated fat, and sodium; a healthy dietary pattern consists of nutrient-dense forms of foods and beverages across all food groups, in recommended amounts, and within calorie limits; individuals interested in limiting dairy intake should consider lactose-free products and fortified soy beverages (U.S. Department of Health and Human Services, 2020).

- **Weight loss** - being overweight or obese can put stress on the body and worsen or potentiate the symptoms of arthritis. Therefore, weight loss may help manage arthritis. Arthritis patients should receive weight loss recommendations, when applicable. Health care professionals should note the weight loss recommendations found below.

    - Individuals should note that the first step to losing weight is to commit to losing weight.

    - Individuals should evaluate their height, weight, and any weight-related risk factors.

    - Individuals should focus on gradual and steady weight loss (e.g., approximately one to two pounds per week).

    - Individuals should initially focus on modest weight loss (e.g., 5% to 10% of total body weight) (note: modest weight loss may lead to health benefits, such as: improvements in blood pressure, blood cholesterol, and blood sugars).

    - Individuals should identify sources for weight loss support.

- **Reduce alcohol use** - reducing alcohol use can help limit and/or prevent inflammation and some of the symptoms of arthritis. Therefore, arthritis patients should receive education regarding alcohol use.

- **Tobacco cessation** - arthritis patients should engage in tobacco cessation, when applicable. When presented with an arthritis patient, health care professionals should consider the five **A**s of tobacco cessation, which include: **A**sk, **A**dvise, **A**ssess, **A**ssist, and **A**rrange. Health care professionals should **A**sk every patient about tobacco use; health care professionals should **A**dvise every patient, who uses tobacco, to quit; health care professionals should **A**ssess the following: a patient's willingness to make a quit attempt within 30 days, determine where each patient is in terms of his or her readiness to quit tobacco use, and past quit attempts; when a patient arrives at the decision to stop tobacco use and commits to tobacco cessation, health care professionals should **A**ssist the patient with his or her tobacco cessation plan; health care professionals should **A**rrange a patient follow up appointment to evaluate/further assist with the patient's tobacco cessation.

- **Psychotherapy and cognitive behavioral therapy (CBT)** - psychotherapy may refer a type of talk therapy that is characterized by the process of helping an individual identify and change troubling emotions, thoughts, and behavior; cognitive behavioral therapy (CBT) may refer to a type of psychotherapy that is characterized by the process of helping an individual change negative patterns of thought and behavior. Health care professionals should note that psychotherapy and CBT may be beneficial to some patients with arthritis.

- **Massage therapy** - massage therapy may be used to help manage arthritis. Specific information regarding massage therapy may be found below. The

information found below was derived from materials provided by the National Institutes of Health (National Institutes of Health, 2019).

- Massage therapy may refer to a practice that involves manipulating the soft tissues of the body.
- Massage therapy is typically used to help manage health conditions and/or enhance wellness.
- The term massage therapy includes many techniques. The most common form of massage therapy in Western countries is called Swedish or classical massage; it is the core of most massage training programs; other styles include sports massage, clinical massage, and massage traditions derived from Eastern cultures, such as Shiatsu and Tui Na.
- Massage therapy can help individuals reduce stress and tension.
- Massage therapy was studied for several types of pain, including low-back pain, neck and shoulder pain, pain from osteoarthritis of the knee, and headaches.
- Five studies that evaluated massage therapy for osteoarthritis of the knee (408 total participants), found that it provided short-term pain relief.
- A recent evaluation of nine studies (404 total participants) concluded that massage therapy, if continued for at least five weeks, improved pain, anxiety, and depression in people with fibromyalgia.
- A recent evaluation of 10 studies (478 total participants) compared the effects of different kinds of massage therapy and found that most styles of massage had beneficial effects on quality of life in people with fibromyalgia.

- **Medications** - several medications may be used to help manage arthritis. Specific information regarding the medications that may be used to manage arthritis can be found below. The information found below was derived from materials provided by the National Library of Medicine (National Library of Medicine, 2023).

  Aspirin

  Medication notes - aspirin belongs to a class of medications known as nonsteroidal anti-inflammatory drugs (NSAIDs). It is believed NSAIDs reduce inflammation and exert their analgesic effects by inhibiting prostaglandin (PG) synthesis. Common dosage forms of aspirin include oral tablet, enteric coated tablet, and suspension. Aspirin is also available as a rectal suppository. The typical dosing interval for aspirin when used to manage pain in adult patients is four to six hours. Adults should not exceed 4000 mg of aspirin in a period of 24 hours. The most common adverse reactions associated with aspirin include the following: upper abdominal discomfort, abdominal pain, and gastrointestinal bleeding (note: aspirin is typically well tolerated).

  Safety notes - contraindications associated with aspirin include a known hypersensitivity to aspirin. Warnings and precautions associated with aspirin include the potential for allergic reactions; the potential for serious bleeding.

  Considerations for special patient populations - serious bleeding may occur when administering aspirin to patients with bleeding disorders and when administering aspirin to patients on anticoagulant medications; pregnant women should avoid using aspirin in their third trimester.

  Ibuprofen

Medication notes - ibuprofen belongs to a class of medications known as NSAIDs. Common dosage forms of ibuprofen include oral tablets and suspension. Ibuprofen is also available as an intravenous product. The typical dosing interval for ibuprofen is four to eight hours. The total adult, daily dose of ibuprofen should not exceed 3200 mg. The most common adverse reactions associated with ibuprofen include the following: nausea, abdominal pain, constipation, heartburn, and tinnitus (note: ibuprofen is typically well tolerated).

Safety notes - contraindications associated with ibuprofen include a known hypersensitivity to ibuprofen. Warnings and precautions associated with ibuprofen include the potential for stomach bleeding; ibuprofen should not be administered to patients right before or after a heart surgery.

Considerations for special patient populations - ibuprofen has the potential for stomach bleeding when administered to older adults as well as patients with a history positive for ulcers and/or bleeding problems; pregnant women, starting at 30 weeks gestation, should avoid ibuprofen because premature closure of the ductus arteriosus in the fetus may occur.

<u>Naproxen</u>

Medication notes - naproxen is a NSAID. Naproxen is indicated for the treatment of RA, OA, ankylosing spondylitis (AS), acute gout, and the relief of mild to moderate pain. Common dosage forms of naproxen include oral tablets and suspension. The typical dosing interval for naproxen when used to manage pain in adult patients is 8 - 12 hours. The most common adverse reactions associated with naproxen include the following: nausea, abdominal pain, constipation, heartburn, bleeding, ulcers, kidney failure, and liver failure.

Safety notes - contraindications associated with naproxen include a known hypersensitivity to naproxen or other NSAIDs. Warnings and precautions

associated with naproxen include the following: naproxen should be used at the lowest dose possible for treatment and for the shortest time period needed; naproxen should not be administered to individuals with a known allergy to naproxen or other NSAIDs; naproxen should not be administered to patients right before or after coronary artery bypass surgery (CABG).

Considerations for special patient populations - bleeding/ulcers may occur when naproxen is administered to older adults; naproxen may lead to kidney and/or liver failure when administered to individuals with kidney or liver disease; avoid administering naproxen to pregnant women in their third trimester.

Celebrex

Medication notes - Celebrex is a NSAID. Celebrex is indicated for the treatment of OA, RA, and acute pain. The typical dosing interval for Celebrex when used to manage pain in adult patients is every 12 hours. The most common adverse reactions associated with Celebrex include the following: nausea, abdominal pain, constipation, heartburn, high blood pressure, bleeding, ulcers, kidney failure, and liver failure.

Safety notes - contraindications associated with Celebrex include a known hypersensitivity to Celebrex or other NSAIDs; Celebrex should never be administered to patients right before or after coronary artery bypass surgery (CABG). Warnings and precautions associated with Celebrex include the following: Celebrex may cause an increased risk of serious cardiovascular thrombotic events, myocardial infarction, and stroke, which can be fatal; all NSAIDs may have a similar risk; patients with cardiovascular disease or risk factors for cardiovascular disease may be at greater risk; NSAIDs, including Celebrex, cause an increased risk of serious gastrointestinal adverse events including bleeding, ulceration, and perforation of the stomach or intestines, which can be fatal; these events

can occur at any time during use and without warning symptoms; older adults are at greater risk for serious gastrointestinal (GI) events.

Considerations for special patient populations - bleeding may occur when Celebrex is administered to older adults; Celebrex may lead to high blood pressure when administering Celebrex to patients with hypertension.

Cymbalta

Medication notes - among other indications, Cymbalta is indicated for the management of pain associated with fibromyalgia; the management of chronic pain associated with OA; the management of chronic low back pain. The most common adverse reactions associated with Cymbalta include the following: nausea, dry mouth, somnolence, fatigue, constipation, decreased appetite, and hyperhidrosis.

Safety notes - Cymbalta is contraindicated in patients with a known hypersensitivity to the drug or the other components of the product; Cymbalta should not be used concomitantly with a monoamine oxidase inhibitor (MAOI), including the antibiotic linezolid and the thiazine dye methylthioninium chloride (methylene blue) which are less well-known examples of MAOIs, or within at least 14 days of discontinuing treatment with an MAOI; Cymbalta is contraindicated in patients with any liver disease resulting in hepatic impairment; Cymbalta is contraindicated in patients with severe renal impairment. Warnings and precautions associated with Cymbalta include the following: potential association with behavioral and emotional changes, including self-harm; Cymbalta increases the risk of elevation of serum aminotransferase levels; Cymbalta has been associated with an increase in blood pressure and clinically significant hypertension in some patients.

Considerations for special patient populations - Cymbalta is excreted into the milk of lactating women.

Colchicine

Medication notes - Colchicine is indicated for gout flares. The recommended dose for gout flares is 1.2 mg (2 tablets) at the first sign of a gout flare followed by 0.6 mg (1 tablet) one hour later. The most common adverse reactions associated with colchicine include diarrhea and pharyngolaryngeal pain.

Safety notes - contraindications associated with colchicine include the following: patients with renal or hepatic impairment should not be given colchicine in conjunction with P-gp or strong CYP3A4 inhibitors. Warnings and precautions associated with colchicine include the following: fatal overdoses have been reported with colchicine in adults and children; keep colchicine out of the reach of children; myelosuppression, leukopenia, granulocytopenia, thrombocytopenia, and aplastic anemia have been reported; monitor for toxicity and if present consider temporary interruption ordiscontinuation of colchicine; myotoxicity including rhabdomyolysis may occur, especially in combination with other drugs known to cause this effect.

Considerations for special patient populations - in patients with severe hepatic or renal impairment, close monitoring is recommended; for patients undergoing dialysis, the total recommended dose for gout flares should be reduced to 0.6 mg (1 tablet) x 1 dose; caution should be exercised when administered to a nursing woman.

Section 2 Summary

Arthritis often requires treatment. Health care professionals may select non-pharmacological and/or pharmacological options to manage arthritis. Health care professionals should select treatment options that meet patients' needs, requirements, and life-style.

Section 2 Key Concepts

- The following treatment options may be used to manage arthritis: protecting the joints, physical activity, diet, weight loss, reducing alcohol use, tobacco cessation, psychotherapy, cognitive behavioral therapy (CBT), massage therapy, and medications.

Section 2 Key Terms

Psychotherapy - a type of talk therapy that is characterized by the process of helping an individual identify and change troubling emotions, thoughts, and behavior

Cognitive behavioral therapy - a type of psychotherapy that is characterized by the process of helping an individual change negative patterns of thought and behavior

Massage therapy - a practice that involves manipulating the soft tissues of the body (National Institute of Health, 2019)

Section 2 Personal Reflection Question

How can health care professionals effectively educate patients about arthritis management?

Section 3: Case Study

The case study at the beginning of the course is presented in this section to review arthritis-related concepts. A case study review will follow the case study. The case study review includes the types of questions health care professionals should ask themselves when considering arthritis care. Additionally, reflection questions will be posed, within the case study review, to encourage further internal debate and consideration regarding the presented case study and arthritis care. The

information found within the case study and case study review was derived from materials provided by the CDC unless, otherwise, specified (CDC, 2022).

Case Study

A 48-year-old male patient named Franco presents to a health care facility with complaints of toe pain. Upon questioning from a health care professional, Franco reports that he "woke up with extreme pain" in his right "big toe." The health care professional asks Franco to rate his current pain on a scale from 1 to 10, with 10 meaning the worst pain possible. Franco gives his pain a rating of seven out of 10. Franco goes on to say that he "does not remember injuring" his "big toe, it just started hurting." A patient examination reveals that the patient is 6'1" and 240 lbs. As Franco steps on and off the scale, the health care professional notes that Franco is limping. Further questioning from the health care professional reveals that Franco is allergic to ibuprofen. The health care professional asks Franco what happens when he takes ibuprofen. Franco responds by saying, he "gets a stomach ache." Franco goes on to say that he is attempting to lose weight, and is trying a new diet that focuses on protein. Franco reports that he "eats a lot of red meat for protein." Franco also reports that he drinks four to six beers a week, but is trying to "cut back." Finally, Franco asks the health care professional for a "pain med."

Case Study Review

What patient details may be relevant to arthritis?

The following patient details may be relevant to arthritis: a 48-year-old male patient named Franco presents to a health care facility with complaints of toe pain; Franco reports that he "woke up with extreme pain" in his right "big toe;" Franco gives his pain a rating of seven out of 10; Franco goes on to say that he "does not remember injuring" his "big toe, it just started hurting;" Franco is 6'1" and 240 lbs; as Franco steps on and off the scale, the health care professional notes that Franco is limping; Franco reports that he is allergic to ibuprofen; the health care professional asks Franco what happens when he takes ibuprofen;

Franco responds by saying, he "gets a stomach ache;" Franco goes on to say that he is attempting to lose weight, and is trying a new diet that focuses on protein; Franco reports that he "eats a lot of red meat for protein;" Franco reports that he drinks four to six beers a week, but is trying to "cut back;" Franco asks the health care professional for a "pain med."

Are there any other patient details that may be relevant to arthritis; if so, what are they?

How are each of the aforementioned patient details relevant to arthritis?

Each of the previously highlighted patient details may be relevant to arthritis. The potential relevance of each patient detail may be found below.

A 48-year-old male patient named Franco presents to a health care facility with complaints of toe pain - the previous patient detail is relevant because it provides context for the patient's care.

Franco reports that he "woke up with extreme pain" in his right "big toe" - the previous patient detail is relevant because it is a sign/symptom of gout. Health care professionals should note the following signs/symptoms of gout: intense pain, swelling, redness, and heat in the affected joint.

Franco gives his pain a rating of seven out of 10 - the previous patient detail is relevant because it provides insight into the patient's pain. When presented with patients suffering from pain, health care professionals should assess the patient's pain by asking the patient to rate the intensity of the pain and describe the pain (e.g., does the pain feel dull or sharp). Health care professionals can also ask patients questions about activities that worsen their pain and relieve their pain.

Franco goes on to say that he "does not remember injuring" his "big toe, it just started hurting" - the previous patient detail is relevant because it suggests the patient may be suffering from gout. Health care professionals should note that often patients with gout report that their pain is not related to an injury.

Franco is 6'1" and 240 lbs - the previous patient detail is relevant to gout risk factors, specifically obesity. Based on the patient's height and weight, the patient's BMI is approximately 31.7 kg/m^2, which indicates the patient is obese. Health care professionals should note that an individual may be considered to be obese when his or her BMI is greater than or equal to 30 kg/m^2.

As Franco steps on and off the scale, the health care professional notes that Franco is limping - the previous patient detail is relevant because it suggests the patient may be suffering from gout. Health care professionals should note that individuals may have trouble walking when gout affects a big toe.

Franco reports that his is allergic to ibuprofen; the health care professional asks Franco what happens when he takes ibuprofen; Franco responds by saying, he "gets a stomach ache" - the previous patient details are relevant to patient care. Health care professionals should ask patients if they have allergies to help prevent an allergic reaction (note: the term allergic reaction may refer to an abnormal response by the immune system to a foreign substance). Health care professionals should also ask patients follow up questions to determine if the reported allergy is a true allergy. Health care professionals should note that a true drug allergy is rare and caused by the immune system (CDC, 2020). Health care professionals should also note the following symptoms of an allergic reaction: wheezing, shortness of breath, throat and mouth swelling, rash, and hives (CDC, 2020).

Franco goes on to say that he is attempting to lose weight, and is trying a new diet that focuses on protein; Franco reports that he "eats a lot of red meat for protein" - the previous patient detail is relevant to gout risk factors, specifically diet. Health care professionals should note the following risk factors for gout: obesity, medications (e.g., diuretics), alcohol use, eating or drinking food and drinks high in fructose, diet rich in purines, and gender (note: men have a higher risk for gout). Health care professionals should also note the following purine-rich foods: red meat, organ meat, anchovies, sardines, mussels, scallops, trout, and tuna.

Franco reports that he drinks four to six beers a week, but is trying to "cut back" - the previous patient detail is relevant to gout risk factors, specifically alcohol use.

Franco asks the health care professional for a "pain med" - the previous patient detail is relevant to the patient's care. Health care professionals should note that some patients suffering from a gout flare may ask for medications to relieve their symptoms. Health care professionals should assess patients' need for medication, and provide medication treatment, when applicable.

What other ways, if any, are the patient details relevant to arthritis?

Is it possible that the patient highlighted in the case study has arthritis?

Based on the information presented in the case study, it may be possible that the patient has gout. However, additional patient information may be required before a diagnosis can be made (e.g., uric acid level).

How can health care professionals gather additional patient information to help confirm the possible presence of gout?

Section 3 Summary

Health care professionals should ask patients questions to obtain relevant patient details that may help identify patients with arthritis. Health care professionals should note that patients with arthritis may be suffering from pain. Health care professionals should work to assess patients' pain, and provide required treatment, when applicable.

Section 3 Key Concepts

- Health care professionals should note that patients with arthritis may be suffering from pain.

Section 3 Key Terms

Allergic reaction - an abnormal response by the immune system to a foreign substance

Section 3 Personal Reflection Question

Why is it important for health care professionals to assess patients' pain when they are presenting with arthritis signs/symptoms?

Conclusion

Arthritis can impact the health, overall well-being, and quality of life of those affected. Therefore, health care professionals should work to identify patients suffering from arthritis. Health care professionals should note that both non-pharmacological and pharmacological options may be used to manage arthritis.

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