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Instructions

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2. Complete the card and mail, or fax Mayra Ramos at (416) 764-3937.
3. Your reply card will be marked and you will be advised of your results in a letter from *Tech Talk*.
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Over-the-counter treatment of osteoarthritis

By Ron Pohar, BSc.Pharm, P.E.B.C.

Statement of objectives

Upon completion of this lesson, the pharmacy technician should be able to:

1. Recognize the symptoms of osteoarthritis.
2. Understand the available nonprescription treatments for osteoarthritis and their common side effects and drug interactions.
3. Recognize the need for a pharmacist consultation to assess possible contraindications, treatment options, physician referral or to provide additional information about osteoarthritis.

Introduction

Osteoarthritis (OA) affects approximately 10 per cent of Canadians, making it the most common form of arthritis that is encountered in the general population.¹ OA is sometimes thought of as a disease of the elderly because it is more likely to occur as people age. In fact, by age 75, virtually the entire population will have symptomatic or asymptomatic OA in one or more joints.¹ However, OA can develop in younger adults; 20 per cent of cases develop by age 45, while 60 per cent of cases of OA develop by the age of 65.¹ Given these numbers, it is not surprising that in Canada OA is the third most common cause of physician office visits in individuals over the age of 65, behind only hypertension and diabetes.²

In addition to physicians, individuals with OA frequently turn to their pharmacists for help. The pharmacist-pharmacy technician team has an important role to play in the management of this disease. OA can be a leading cause of

disability in the adult population if the pain associated with OA is not effectively managed.¹ Thus, following diagnosis by a physician, treatment must be optimized so that the best outcomes for the patient can be achieved and disability minimized.

Disease description

OA can be caused by a number of factors. In older individuals, OA generally occurs from wear and tear on a joint over time, combined with aging effects on the cartilage.^{3,4} In younger adults, OA is more likely to occur following a previous traumatic injury to a specific joint.⁵ Aside from advancing age and joint trauma, risk factors for OA include female sex, obesity, muscle weakness, excessive use of a joint and genetic susceptibility.⁶

OA most often occurs in the hands and weight-bearing joints (knees, hips, spine and toes).¹ The joint pain of OA is aggravated by weight-bearing exercise and improves with rest. The joints that are affected by OA are usually stiff in

the morning for less than 30 minutes and are more painful with initial activity after periods of rest or inactivity, with the pain gradually decreasing as activity is continued.¹ Affected joints are tender to the touch, make a crackling sound when they move and are restricted in their movements.³ Unlike rheumatoid arthritis, inflammation does not usually occur in OA (i.e., no heat, redness or swelling present). If inflammation is present in OA, it tends to be mild and limited to the affected joint.³ The relatively short duration of morning stiffness (less than 30 minutes) and lack of significant joint swelling help to distinguish OA from rheumatoid arthritis¹ (see Table 1).

Treatment

Generally, the goals of therapy in OA include pain control and improvement of mobility and function, while avoiding adverse effects or toxicity of therapy where possible. Management of OA often involves a combination of non-drug, over-the-counter (OTC) and

prescription drug approaches. The main focus of this lesson will be OTC drug treatment.

Non-drug treatments

Physical therapy, aids to daily living (e.g., canes, walkers), orthotics, social support and weight loss have shown beneficial results in the management of OA.¹ Exercise (range of motion and flexibility exercise, aerobic exercise and muscle strengthening) helps to maintain or improve range of motion in the affected joints and also plays a role in achieving weight loss.^{1,6} Such exercise can also help reduce pain and stiffness, improve function and mobility, increase energy, improve quality of life and increase longevity.⁶ Before initiating a new exercise program, patients (particularly sedentary individuals) should consult their physician.

Heat and cold applications can also help manage the pain associated with OA.^{1,6} To avoid ice burns, cold application should be limited to 15 to 20 minutes at a time and cold packs should not be applied directly to the skin.⁶ Cold packs can be wrapped in a towel first and then applied to the affected joint. Cold application may be useful for acute pain, particularly when swelling or inflammation is present.

Heat application is more often beneficial for chronic pain relief in OA because it improves blood flow to the

area and relaxes the muscles, which can help with stiffness.⁶ To reduce the risk of burns, heating pads should be applied for less than 15 to 20 minutes at a time, set lower than high heat and used only during waking periods, not while sleeping.⁶ If an individual wishes to apply heat while sleeping, a hot water bottle is an appropriate option as it will lose heat over the course of the night and does not pose a threat of a burn.

OTC drug treatment

Oral pain relievers (analgesics) play a very important role in drug therapy for OA and are the first line of drug treatment.^{3,5} Other options include topical agents, injections into the affected joint and surgery where appropriate. A large number of prescription non-steroidal anti-inflammatory drugs (NSAIDs) are used to treat OA, but they are beyond the scope of this lesson. The discussion of drug therapies will focus on acetaminophen and ibuprofen, two nonprescription drugs used to treat OA. The use of two nutritional supplements, glucosamine and chondroitin, in the management of OA will also be discussed.

Although ASA (acetylsalicylic acid, e.g., Aspirin) is available as an OTC pain reliever, it is generally not recommended for the management of OA. While ASA is an effective anti-inflammatory and may have a role in the management of rheumatoid arthritis, its role

in the management of OA is limited. Generally, OA is not associated with significant inflammation and ASA may have unacceptable risks with long term use, particularly in older patients. Current guidelines put forth by the American College of Rheumatology do not recommend treatment of OA with ASA. This is in part due to the gastrointestinal complications and irreversible anti-platelet (i.e. blood thinning) effects associated with ASA use, which in combination can potentially be dangerous for individuals with risk factors for gastrointestinal bleeding with ASA. Inquiries about ASA use in OA should be referred to a pharmacist.

Acetaminophen

Acetaminophen (e.g., Tylenol) is an OTC analgesic and antipyretic (fever reducer); it is not an anti-inflammatory. For the management of mild to moderate OA, acetaminophen is the drug of first choice at a dose of 650 mg to 1,000 mg four times daily.^{3,5} Acetaminophen is a relatively inexpensive treatment alternative that is usually well tolerated. Mild stomach upset is its most frequently reported side effect.⁵ Acetaminophen can be toxic to the liver if taken in greater than the recommended dosages or if taken by individuals with liver disease or who ingest an excessive amount of alcohol (more than three drinks per day).⁵

It is important to note that acetaminophen is found in many multi-ingredient OTC products, such as cough and cold medications and products for the relief of backache, premenstrual syndrome, menstrual cramps, etc. Thus, it is possible for individuals to be consuming acetaminophen from more than one OTC drug source, sometimes unknowingly. Technicians can identify individuals who purchase more than one product that contains acetaminophen and refer these individuals to a pharmacist.

Acetaminophen can interact with the anticoagulant warfarin and increase its effect.^{5,7} These at-risk individuals should be referred to a pharmacist for further evaluation.

Some patients may benefit from the short-term use of combination acetaminophen and codeine products in situations of acute pain, but they must be referred to a pharmacist for assessment.⁷ These products have the additional adverse effects of lightheadedness, dizziness, sedation, constipation, nausea, vomiting and itching.

Ibuprofen

While acetaminophen tends to have fewer side effects than NSAIDs, NSAIDs may be better at relieving pain in OA.⁸ Certain individuals with OA may benefit from the use of an OTC NSAID, such as ibuprofen (e.g., Advil, Motrin). The dose of ibuprofen used in OA is 200 mg to 600 mg every six to eight hours.⁵ Ibuprofen is not recommended for individuals with an allergy to ASA or another NSAID. Caution is required in using this drug in patients with kidney or liver disease, congestive heart failure or high blood pressure.⁹

Ibuprofen has a number of side effects, many of which involve the gastrointestinal system. Common side

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Pharmacy
PRACTICE

Distinguishing features of osteoarthritis and rheumatoid arthritis

	Osteoarthritis	Rheumatoid arthritis
Morning stiffness	Less than 30 minutes	Greater than 30 minutes, usually up to one hour
Redness	Usually absent	Usually present
Warm to the touch	Rarely	Frequently
Swelling	Absent, but bony enlargement may be a feature	Usually present
Tenderness	Usually present	Usually present

effects (affecting 1 to 10 per cent of patients) include stomach upset, nausea, vomiting, diarrhea, indigestion, itching, rash, headache, dizziness, fatigue and fluid retention. Peptic ulcers and gastrointestinal bleeds are serious complications of ibuprofen use, affecting less than one per cent of ibuprofen users. Individuals over the age of 65, with a history of peptic ulcer, or taking anticoagulants (e.g., warfarin, clopidogrel, ticlopidine or heparin) or corticosteroids (e.g., prednisone, dexamethasone) would be considered at high risk for developing these complications.^{1,10} Such individuals should be referred to a pharmacist for consultation.

Ibuprofen has a number of important drug interactions. It can cause fluid retention and therefore may reduce the effects of antihypertensive medications such as beta-blockers (e.g., propranolol, metoprolol), angiotensin converting enzyme (ACE) inhibitors (e.g., ramipril, quinapril, enalapril, captopril), diuretics (e.g., hydrochlorothiazide, furosemide) and alpha-blockers (e.g., prazosin, doxazosin). Ibuprofen can increase bleeding times with warfarin. As well, if given with cyclosporine or methotrexate, ibuprofen can increase the toxic effects of these two medications. Increased blood levels of digoxin and lithium can occur if ibuprofen is added.

Ibuprofen is a nonprescription medication that has

numerous drug-drug and drug-disease interactions, and places certain individuals at risk for serious complications. Because of this, pharmacy technicians can best assist patients buying ibuprofen by referring them to a pharmacist. This guideline applies particularly to older adults, individuals taking other medications and those with other medical conditions.

Nutritional supplements

Glucosamine and chondroitin are two nutritional supplements marketed as remedies for OA.¹¹ There is evidence from placebo-controlled randomized trials that both glucosamine and chondroitin relieve pain and improve function in OA when taken alone or together for at least one month.¹¹ There is no evidence showing additional benefits of taking glucosamine and chondroitin in combination, so either product can be taken alone.¹² Evidence for the use of these products in combination with analgesics is limited. Glucosamine and chondroitin generally have few side effects, the most common being stomach upset.¹²

Glucosamine is generally dosed at 500 mg three times per day.¹¹ Patients with diabetes may need to check their blood glucose more frequently when taking glucosamine as it may affect glycemic levels. As well, glucosamine should be avoided in those individuals with shellfish allergies. The dose of chondroitin is

400 mg three times daily.¹² Chondroitin can prolong bleeding times, so it may interact with anticoagulants such as warfarin. Pharmacy technicians should ensure that individuals with diabetes who purchase glucosamine, or individuals taking an anticoagulant and purchasing chondroitin, be given an opportunity to consult with a pharmacist.

Topical therapy

Little evidence supports the use of OTC topical therapies in the management of OA.⁵ Of the numerous nonprescription topical therapies available, products containing capsaicin may be of some value as an adjunct to oral therapy or to patients who refuse oral therapy.⁵ In order to be effective, capsaicin cream must be applied consistently, three to four times daily, every day. Maximum beneficial effects appear in 14 to 28 days.⁹ Once the cream is applied, the hands should be washed to avoid contact of the cream with the eyes, mouth or nose, unless the hand is the area being treated.⁹ Irritation and stinging is relatively common with capsaicin cream and causes some patients to discontinue its use.¹³ The treated area should not be bandaged and external heat sources should not be used. Technicians can help identify individuals buying topical capsaicin products for the first time who may require counselling from a pharmacist to ensure that they use the product correctly

to receive maximum benefit.

Although many OTC products that contain topical salicylates are available, evidence of their efficacy is limited.⁵ Like capsaicin, these products can be used in addition to oral therapy or in cases where oral therapy is refused. Caution should be exercised with prolonged or excessive use, or with use on broken or abraded skin as toxicity may occur.

Summary

OA is a common form of arthritis that can often be managed with nonprescription drug products. Acetaminophen is the initial drug of choice in mild to moderate OA as it is generally effective and well tolerated. NSAIDs offer an alternative that may be more effective in relieving pain, but they tend to be less well tolerated and have more drug-drug and drug-disease interactions. The role of topical agents in the management of OA is limited. Pharmacy technicians have a key role to play in assisting pharmacists with managing patients with OA. Pharmacy technicians can greatly assist in managing OA by identifying at-risk patients and ensuring they have an opportunity to consult with the pharmacist.

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Missed something?

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QUESTIONS

1. Which of the following is NOT one of the most common features of osteoarthritis?

- Inflammation.
- Morning stiffness lasting less than 30 minutes.
- Joint pain that is worse after periods of inactivity or rest.
- Restriction in range of motion of joints.
- Aggravation of joint pain with weight bearing or exercise.

2. Which of the following statement(s) is/are correct regarding capsaicin cream?

- The most common side effect is stinging and irritation.
- It is applied three to four times daily only as needed.
- Patients may not notice an improvement for 14 to 28 days.
- A and C are correct.
- All of the above are correct.

3. What is the most common adverse effect of glucosamine?

- Dizziness.
- Easy bruising.
- Stomach upset.
- Headache.
- Rash.

4. Acetaminophen may be preferred to ibuprofen in the treatment of osteoarthritis because:

- Acetaminophen has fewer side effects than ibuprofen.
- Acetaminophen has fewer drug interactions.
- Acetaminophen is better at relieving the pain associated with osteoarthritis.
- A and B are correct.
- All of the above are correct.

5. In younger adults, osteoarthritis is usually caused by:

- Wear and tear on a joint over time.
- Previous injury to a joint.
- None of the above.

6. Ibuprofen may interact with which of the following medications?

- Ramipril.

- Furosemide.
- Metoprolol.
- Lithium.
- All of the above.

7. Which of the following factors may increase the risk of a gastrointestinal bleeding with ibuprofen?

- Dexamethasone use.
- Patient age over 65 years.
- Patient history of peptic ulcer.
- Warfarin use.
- All of the above.

8. Which of the following non-drug treatments are used in the management of osteoarthritis?

- Exercise.
- Weight loss.
- Social support.
- Heat and/or cold application.
- All of the above.

9. To reduce the risk of burns with heat therapy:

- Do not apply heating pads for more than 15 to 20 minutes at a time.
- Do not set heating pads at high.

- Do not use hot water bottles while sleeping.
- A and B are correct.
- A, B and C are correct.

10. Which of the following statement(s) is/are true regarding glucosamine and chondroitin?

- Glucosamine should be taken in combination with chondroitin because the two products together are more effective than either product alone.
- Chondroitin should be used with caution in individuals with diabetes because it may affect blood glucose.
- Glucosamine should be used with caution in individuals who take anticoagulants because it may prolong bleeding times.
- Glucosamine and chondroitin relieve pain and improve function in osteoarthritis.
- All of the above are true.

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SEPTEMBER/OCTOBER2004

Over-the-counter treatment of osteoarthritis

1 CEU

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Please help ensure this program continues to be useful to you by answering these questions.

1. Do you now feel more informed about over-the-counter-treatment of osteoarthritis?
 Yes No
2. Was the information in this lesson relevant to you as a technician? Yes No
3. Will you be able to incorporate the information from this lesson into your job as a technician?
 Yes No N/A
4. Was the information in this lesson... Too basic Appropriate Too difficult
5. How satisfied overall are you with this lesson? Very Somewhat Not at all
6. What topic would you like to see covered in a future issue? _____

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