Lecture 19 - About Headaches

It is respectfully requested by the Author that no part of this Tech Lecture® be reproduced or transmitted in any form, by any means without express written consent.

Joe Medina CPhT, Pharm D.

Tech Lectures Copyright 2019
Section XXI - Headaches

Introduction

As the role of the Pharmacy Technician continue to change as far as dispensing functions, it is important to remember that a basic knowledge of Pharmacology is also relevant in helping the customer in need.

The Pharmacy Technician is the first one to see a customer and in many cases, the only one to have total customer contact. A basic understanding as to what medications the customer is on and, as to what disease state make these medications necessary, will help the Pharmacy Technician empathize and better help the customer in need. This knowledge is essential especially in the case of the patient who is suffering from severe headaches such as migraines.

Headaches

Headache can be defined as a diffuse type of pain associated in different portions of the head. Headache is extremely common and is the sufferer’s most frequent complaint and reason for visiting their general practitioner. It is estimated that 70 to 80% of adults suffer from headache at sometime in their lives. Headaches, either acute or chronic, may be frontal (forehead), temporal (temples), or occipital (back); confined to one side of the head or to the region immediately over one eye. The character of pain may vary from dull and aching to acute and almost unbearable. The pain can be an intermittent intense pain, a throbbing pain, a pressure pain as if the head will burst, or a penetrating pain driving through the head. Either type of pain is generally not acceptable by the individual who suffers from a headache. In most cases, treatment is limited to symptomatic relief versus actual treatment of the headache involved.

Causes

The cause of headache is often times difficult to diagnose as there are many reasons a headache may occur. In most cases, headaches are due to muscle tension, migraine or head pain of which no structural cause can be found. Surprisingly most headaches derive from extra-cranial than intracranial sources such as diseases of the eyes, nose, throat, teeth, and ears.
Diagnosis

In many cases, headaches are not diagnosed correctly or treated appropriately. Therefore, patient and clinical history are important in finding correct diagnosis and treatment involved. Patient history is an important clue as to the cause of an individual’s headache especially in the case of a normal physical examination.

Clinical history is essential in making a correct diagnosis as many headaches have a recognizable pattern. Blood tests may screen for thyroid disease, anemia, or infections. X-rays may be taken to rule out bony abnormalities. An electroencephalogram (EEG) may be done to measure brain activity. Patients with unusual headaches may require a computed tomographic (CT) scan or magnetic resonance imaging (MRI) which demonstrate internal brain structures or biochemistry of the brain. An eye examination may be done to check for weakness in the eye muscle or unequal pupil size. An angiogram may be undertaken to reveal any abnormalities in the blood vessels in the brain.

Types of Headaches

Headaches without underlying disease are termed “primary”, and include tension-type, migraine and cluster headaches. About 95% of all headaches are primary. Less than 5% of headaches are considered as “secondary” headaches. Secondary headaches signal a serious medical condition.

**Tension-Type Headache (TTH)**

Tension-type headaches account for three-fourths of all headaches and is a neurological condition affecting both men and women equally. They are usually diffuse with pain over the top of the head or back of the neck. Tension or stress may trigger a TTH, but they are not the cause. The true culprit is a genetic predisposition for certain triggers to cause the increased muscle tension and the changes in the central nervous system and

---

**Important patient history questions in evaluation of type of headache include:**

1. Where is the headache?
2. How frequently does it occur?
3. How long does it last?
4. What type of pain is it?
5. When does it occur?
6. How does it come on?
7. What are the associated symptoms?
8. What factors bring it on?
9. What factors relieve the headache?
10. What are aggravating factors?
11. What are the warning symptoms?
12. How does it leave?
13. Family history of headache?
14. Other factors?
15. Other medical illnesses or trauma?
16. Medications?
17. Drug use?

---

**Symptoms associated with TTH:**

- Pain is usually on both sides of the head, but may be anywhere on the head.
- Pain is often described as band-like, dull, pressing, or aching.
- Pain is unilateral (one-sided) in approximately 20% of patients.
- Pain is usually mild to moderate.
- Pain lasts 30 minutes to seven days.
- Pain accompanied by tightness in neck and shoulders.
- Difficulty concentrating.
- Heightened sensitivity to light or noise, but not both.
blood vessels that produce the TTH. Common TTH triggers include: missed meals, lack of sleep, bright lights, cigarette smoke, anxiety and stress. TTH is more commonly found in people with poor posture, those who strain their neck and shoulders a lot and people who work at stationary, repetitive tasks.

Treatment for TTH headache varies. The first consideration is to treat any specific disorder or disease that may be causing the headache. For example, arthritis of the neck is treated with anti-inflammatory medication.

Acute TTH headaches not associated with a disease are treated with muscle relaxants and analgesics like aspirin and acetaminophen. Stronger analgesics, such as propoxyphene and codeine, are sometimes prescribed. Taking antidepressants or MAO inhibitors may also help people with chronic TTH headaches. Mixed muscle-contraction and migraine headaches are sometimes treated with barbiturate compounds, which slow down nerve function in the brain and spinal cord.

People who suffer infrequent TTH headaches may benefit from a hot shower or moist heat applied to the back of the neck. Cervical collars are sometimes recommended as an aid to good posture. Physical therapy, massage, and gentle exercise of the neck may also be helpful.

**Vascular Headaches**

**Cluster Headaches**

Cluster headaches are uncommon affecting men more than women and smokers more than non-smokers. With an abrupt onset, cluster headaches can occur at anytime, but mostly occur 2 to 3 hours after affected individual falls asleep. Characteristics include: intense burning, boring pain located in or around one eye and temple or in cheek or jaw. Affected eye may be bloodshot or teary. The nostril on the side of the affected eye may be congested or run profusely. Other features include, reduced pupil size on the painful side and drooping eyelid, flushed face and sweaty brow. The pain intensifies within 5 to 10 minutes to a peak that can persist for up to 2 hours. The headaches tend to occur in separate bouts or clusters in one or more attacks daily for periods of weeks to months.
Treatment of cluster headaches differs as in tension-type headache, as muscle contraction is not the causative factor. Although the exact cause is unknown, constriction of blood vessels does play a role in both treatment and prevention. The most satisfactory treatment is the administration of drugs to prevent cluster attacks until the bout is over. Treatment for cluster headaches is similar to treatment for migraine type headaches which will be discussed later in this CE offering.

**Migraines**

About 6 percent of primary headaches are migraine in nature. With a strong genetic component, migraines are three times more common in women than men. Most often migraines occur between the ages of 5 and 25 years and in most cases, subside after the age of 50.

Migraine headaches are characterized by intense, throbbing head pain, worsened by physical activity. It is felt in the forehead, temple, ear, jaw, or around the eye. Most migraines are one-sided. They are long lasting (from 4 to about 72 hours), and often associated with nausea, vomiting, and sensitivity to light and/or sound.

The cause of migraines is unknown, but evidence suggests a genetically transmitted functional disturbance of intracranial and extracranial circulation. Alteration in regional cerebral blood flow due to intracranial arterial vasodilation are known to accompany a migraine attack and possibly to cause it. The mechanism of migraines is thought to be related to episodic reduction of systemic serotonin concentrations.

Migraines are linked to blood vessels that overreact to various triggers. These “triggers” cause spasm and constriction of the nerve-rich arteries in the brain followed by dilation of certain arteries within the brain, neck and scalp. Pain producing substances called prostaglandins and a chemical called serotonin are involved. The release of these chemicals and the dilation of arteries stimulate pain receptors in the head, resulting in a throbbing headache pain.

### Symptoms associated with migraines:

- Moderate to severe pain
- Nausea
- Sensitivity to light and noise
- (and sometimes smell)
- Throbbing, pulsating at site of pain
- Pain, mainly one-sided
- Pain made worse with activity
- Vomiting

### What Causes Migraine?

No one knows exactly why migraines occur. We do know that the tendency to develop migraines can be inherited. Studies have shown that if one parent has migraines, there is a 40% chance that the child will have migraines. If both parents have migraines, there is a 75% chance that their children will have migraines.

Migraine triggers activate an already existing imbalance of chemicals in the brain. Common triggers include hormone changes, diet (alcohol, especially red wine or beer; aged cheeses; chocolate; pickled foods; monosodium glutamate; aspartame and caffeine), stress, weather changes, season, altitude, time zone, sleep patterns or meal times. Bright lights, unusual odors, medications or polluted air may also trigger migraines.
About 10 to 20% of migraine patients experience an “aura” 10 to 30 minutes prior to having a migraine headache. These are neurological symptoms that usually precede the headache. An aura is generally a visual change such as bright flashing lights; flickering, colored zigzag lines; blind spots; or loss of vision off to one side. An aura can also include a tingling sensation or numbness or weakness on one side of the face or body, dizziness, speech problems or confusion. The cause of aura is still unknown.

**Pharmacological Treatment of Migraines**

Although headaches are recognized by pain, each patient differs in the type of pain, how quickly it comes on, other symptoms that occur with it such as nausea, and how disabled the patient is with the pain. Therefore, it is important that the treatment be individualized to meet the patient’s need for their type of headache.

Another reason to individualize treatment is the risk of having medical conditions other than headache (such as heart disease, depression, anxiety, and pregnancy, among others). For example, patients with asthma do not want to take a migraine medication that will make their asthma worse or interact with other asthma medications.

Appropriate and effective treatment for migraine also depends on an accurate diagnosis. In general, the treatment of migraine may be divided into two general pharmacologic approaches: treatment of the acute attack (symptomatic) or preventative (prophylactic) therapy aimed at preventing the recurrence of headache. Patients often may need both treatments if their headaches are frequent and severe.

It would be nice to say that treatment protocol for headache sufferer’s work, but with individualization of symptoms and causes, for some, treatment becomes a guessing game.

---

**A Tigers Tale**

*by Holly J., age 17*

Inside my head lives a tiger. 
A quiet deceptive presence. 
Waiting around to come out unexpectediy, whenever I'm enjoying myself.

It slashes my head with its long, lethal claws, 
and prints it's stripes across my eyes. 
It growls out it's warning to me.

Sometimes, in the peace of sleep, 
it roars! 
Lashing, biting, stomping from side to side. 
And then I'm angry! 
I belt the tiger against the wall. 
I hit and fight.

And after? When it's gone? 
....I see the faces looking at me anxiously, 
and I feel a huge sadness.
Symptomatic Treatment

Nonspecific analgesics

Generally nonspecific analgesics are used in trying to alleviate symptoms associated with migraine headaches. These drugs can be subdivided into low-range, mid-range and high-range analgesics depending on their strength, side effects and abuse potential.

Low-range analgesics include simple over-the-counter (OTC) analgesics or prescription nonsteroidal anti-inflammatory drugs (NSAIDs) alone, or in combinations that include caffeine. Aspirin and acetaminophen are effective in treating mild to moderate migraine. Both aspirin and acetaminophen are commonly combined with caffeine, which has been shown to have independent analgesic action and also to increase the plasma concentration of aspirin. Rebound headaches are possible if these analgesics are used more than 3 days a week.

Nonsteroidal anti-inflammatory drugs (NSAIDs) have been found to diminish both the severity of migraine attacks and their duration. Due to patient variability, no NSAID has been found to be more effective than another, therefore, the choice of an NSAID for individual patients may involve trial and error. Naproxen is often an initial choice for migraine, due to its efficacy, tolerance and safety record. The majority of NSAIDs are given orally; indomethacin is available as a rectal suppository, which may be useful for patients with severe nausea and vomiting. Ketorolac, the only NSAID that can be given parenterally, is available in a self-administered cartridge needle unit for IM injection. The most common side effects of NSAIDs are gastrointestinal, ranging from mild dyspepsia to gastric bleeding. In general, dosages of NSAIDs should not exceed the recommended maximum dose.

Mid-range analgesics include the sedative butalbital combined with either aspirin or acetaminophen. Butalbital is a short-acting barbiturate that may reduce the anxiety associated with migraines. These agents must be used cautiously as rebound headaches can develop if the recommended dosage is exceeded. In addition, barbiturates should never be used in patients suffering from depression, and should be used cautiously in elderly patients or prior to driving or using heavy machinery.

Midrin is a compound containing isometheptene (a sympathomimetic), acetaminophen, and dichloralphenazone (a choral hydrate derivative) that has been shown to be an effective agent for mild to moderate migraines, particularly among patients who cannot tolerate ergotamine. The drug is generally well tolerated, although drowsiness and nausea may occur. Because of its adrenergic properties, the drug is contraindicated in patients with severe hypertension, glaucoma or in those taking monoamine oxidase inhibitors.
High-range analgesics include aspirin or acetaminophen in combination with an opioid/narcotic analgesic or an opioid medication alone. Due the potential for abuse, opioid analgesics have a controversial role in the management of acute migraine, although opioids, such as codeine, meperidine and oxycodone are commonly prescribed for treatment of migraine. In addition, opioids in combination with antiemetics and antihistamines are commonly used in emergency departments to treat migraine. Codeine is the opioid most commonly used. Intranasal butorphanol is a mixed agonist-antagonist, which has a lower potential for drug abuse. When used as a rescue medication in patients with nocturnal headaches, the impact of side effects, such as orthostasis and sedation are not as problematic. Opioids may also be an alternative in patients with menstrual migraine that does not respond to standard symptomatic agents. More potent narcotic analgesics, such as oxycodone or meperidine are available in combination with simple analgesics. Their use should be limited to reliable patients with severe migraines that are unresponsive to other analgesics, ergots and serotonin agonists.

Specific Therapy

With increased knowledge and the advent of serotonin agonists and antagonists, treatment protocols for migraines and other vascular type headaches such as cluster headaches have changed dramatically. Ergot alkaloids such as ergotamine and dihydroergotamine (DHE), a derivative of ergotamine, are vasoconstrictors that function by counteracting the dilation of extracranial arteries and arterioles. Routine use of ergotamine has been limited due to its side effects, including nausea and vomiting, which contribute to its unpredictable oral absorption, abdominal cramps, diarrhea, dizziness, muscle cramps and peripheral vasoconstriction.

Selective Serotonin Receptor Agonists (these agents are selective 5-HT1 receptor agonists), such as Sumatriptan and newer serotonin agonists, i.e., naratriptan, rizatriptan and zolmitriptan, have broadened the treatment options for specific therapy. Although it is difficult to say at this time which one is better, rizatriptan and zolmitriptan may have an advantage of an earlier onset of action as compared to oral sumatriptan. This may allow some patients receiving sumatriptan injections to be switched to oral rizatriptan or zolmitriptan. Naratriptan may have an advantage of longer duration of action, which may make it a suitable alternative for those patients who routinely need rescue medications with other serotonin agonists.

Although selective serotonin receptor agonists have an improved safety profile compared to ergot derivatives, overuse may also be associated with the development of chronic
daily headaches, particularly if the patient takes the drug in anticipation of headache on a chronic basis.

**Prophylactic Treatment of Migraines**

Prophylactic or preventive therapy is usually recommended for patients who experience more than 2 to 3 headaches per month. However, simple headache numbers do not take into account headache severity or other individual circumstances. Thus, patients with infrequent, but severely incapacitating headaches may be appropriate candidates for prophylactic therapy, particularly if these headaches are poorly controlled with symptomatic therapy. Patients must understand that prophylactic therapy is rarely effective in completely eliminating headaches, and may only minimally take care of the severity and duration of headaches that do occur. In fact, preventive therapy is considered a success if it reduces attacks by 50%.

**Beta adrenergic Blockers** (β-blockers) such as propranolol, timolol, nadolol, metoprolol and atenolol are one of the first-line choices for migraine prophylaxis. Although the relative efficacy of different β-blockers has not been clearly established.

**Tricyclic antidepressants** such as Amitriptyline, nortriptyline, doxepin, and protriptyline are all tricyclic antidepressants that have been used for migraine prophylaxis. Amitriptyline, in particular, has been shown to decrease the frequency, severity and duration of migraine attacks. The selection of an antidepressant may be dictated by the drugs' pharmacological action and the patient's need. For example, a patient who also suffers from insomnia might benefit most from a tricyclic agent with sedative effects, such as amitriptyline. Weight gain is a side effect associated with tricyclic antidepressants, so they may be preferable for patients who are not overweight.

**Anticonvulsants** such as Divalproex is an anticonvulsant that has been widely used for migraine prophylaxis and recently received FDA labeling as a preventive treatment. Several clinical trials of divalproex have shown that its use as a prophylactic agent is associated with a reduction in the number of migraine attacks, as well as a reduction in their duration and intensity. Since it is an anticonvulsant, divalproex may be particularly appropriate in patients who also may have epilepsy or mania.

**Calcium channel blockers** such as verapamil, nifedipine and diltiazem, are another commonly used prophylactic medication, although studies of their effectiveness have shown mixed results. Calcium channel blockers typically have a slow onset of action, ranging from 2-8 weeks.

**Methysergide** (Sansert) is a very effective prophylactic agent, but it is not commonly used due to its potential for side effects, which include a rare (1/2500), but potentially fatal fibrosis involving the retroperitoneum, lungs or endocardium.

**Monoamine oxidase inhibitor** agents are often considered in patients of which other prophylactic approaches does not work, particularly those whose migraines are
complicated by tension-type headaches. Phenelzine (Nardil) is the most commonly prescribed MAOI. The use of phenelzine is limited by numerous drug interactions, including those that occur with serotonin receptor agonists and the common side effects associated with MAOIs. These include restlessness, dizziness, headache, insomnia, fatigue, tremor, constipation, anorexia, urinary retention, skin rash, postural hypertension, and the potential for serious hypertensive crises, which requires the patient to be placed on a tyramine-free diet.

**Drug combinations** of the above drugs can be used quite successfully for individuals in which one drug alone does not work. Drug combinations involve careful monitoring to find the correct combination and dose needed.

**Non-Pharmacological Treatment of Migraines**

Non-drug therapy for chronic any type of headaches, including migraines, includes biofeedback, relaxation training, and counseling. A technique called *cognitive restructuring* teaches people to change their attitudes and responses to stress. Patients might be encouraged, for example, to imagine that they are coping successfully with a stressful situation. In *progressive relaxation therapy*, patients are taught to first tense and then relax individual muscle groups. Along with counseling, non-pharmacological therapy should co-exist with patients who are on pharmacological therapy as well.

**Conclusion**

Headache, or more specifically migraine therapy, should always be tailored to a patient’s individual need. Consideration of therapy should involve patient preference, co-disease state(s), and treatment options. Effective therapy requires knowledge of cause and diagnosis through correct interpretation of patient and clinical history. Treatment should also involve the impact it will have on the patient daily life. The choice of symptomatic or prophylactic therapies should always be between the patient and the physician. Nonpharmacological therapies should also be considered as part of treatment protocol in allowing the patient to learn cognitive restructuring or progressive relaxation therapy.

After reading this CE offering, the Pharmacy Technician should realize that the treatment of headaches or migraines is a very difficult one. In many cases, treatment protocols need to be changed leaving the patient with an understanding that the pain derived from their headache or migraine may not be relieved. A basic understanding will allow the Pharmacy Technician to empathize with these patients/customers and hopefully allow better customer service. The realization that for this particular disease state, there is no magic pill, will help the Pharmacy Technician to better understand the customer in need.
About the Author

Joe Medina, CPhT, BS Pharmacy, former Program Director of a Pharmacy Technician Program at two community colleges is a lifetime national advocate for the Pharmacy Technician Profession. Mr. Medina has helped produce several textbooks and co-authored the "Pharmacy Technician Workbook & Certification Review" through Morton Publishing. With fifteen years as a Pharmacy Technician and fifteen years as a Pharmacist, Mr. Medina understands the needs of the Pharmacy Technician and the important role they play in interacting with Pharmacists, Medical paraprofessionals and the community in the Pharmacy setting.
### Drugs used in the treatment of Migraines

#### Beta Blockers

- Propranolol HCl (Inderal, Inderal LA)
- Timolol Maleate (Blocadren)

*Use: prophylaxis treatment of migraine*

#### Ergot Derivatives

- Dihydroergotamine mesylate (Migranal Nasal Spray)
- Ergotamine tartrate (Ergomar tablets)

*Use: acute treatment of migraine*

#### Serotonin Receptor Agonist

- Frovatriptan (Frova)
- Naratriptan hydrochloride (Amerge)
- Rizatriptan benzoate (Maxalt tablets)
- Sumatriptan (Imitrex nasal spray)
- Sumatriptan succinate (Imitrex injection, Imitrex tablets)
- Zolmitriptan (Zomig tablets, Zomig-ZMT)

*Use: Acute treatment of migraine*

#### Other products

- Acetaminophen, Aspirin, Caffeine (Excedrin Migraine caplets)

*Use: treatment of migraine*

- Divalproex Sodium (Sodium valproate and valproic acid)
- Topiramate (Topimax)

*Use: prophylaxis treatment of migraine*
IHS Diagnostic Criteria

In 1988 the International Headache Society published criteria for the diagnosis of a number of different headache types. Those for some of the common headaches are reproduced below for migraine with and without aura, cluster headache, tension-type headache, and cervicogenic headache.

**Migraine without aura diagnostic criteria**

A. At least five headache attacks lasting 4-72 hours (untreated or unsuccessfully treated), which has at least two of the four following characteristics:

1. Unilateral location
2. Pulsating quality
3. Moderate or severe intensity (inhibits or prohibits daily activities)
4. Aggravated by walking stairs or similar routine physical activity

B. During headache at least one of the two following symptoms occur:

1. Phonophobia and photophobia
2. Nausea and/or vomiting

**Migraine with aura diagnostic criteria**

A. At least two attacks fulfilling with at least three of the following:

1. One or more fully reversible aura symptoms indicating focal cerebral and/or brain stem functions
2. At least one aura symptom develops gradually over more than four minutes, or two or more symptoms occur in succession
3. No aura symptom lasts more than 60 minutes; if more than one aura symptom is present, accepted duration is proportionally increased
4. Headache follows aura with free interval of at least 60 minutes (it may also simultaneously begin with the aura)

B. At least one of the following aura features establishes a diagnosis of migraine with typical aura:

5. Homonymous visual disturbance
6. Unilateral paresthesias and/or numbness
7. Unilateral weakness
8. Aphasia or unclassifiable speech difficulty
Cluster Headache

A. At least five attacks of severe unilateral orbital, supraorbital and/or temporal pain lasting 15 to 180 minutes untreated, with one or more of the following signs occurring on the same side as the pain

1. Conjunctival injection
2. Lacrimation
3. Nasal congestion
4. Rhinorrhea
5. Forehead and facial sweating
6. Miosis
7. Ptosis
8. Eyelid oedema

B. Frequency of attacks from one every other day to eight per day

Tension-Type Headache

A. Headache lasting from 30 minutes to seven days
B. At least two of the following criteria:

1. Pressing/tightening (non-pulsatile) quality
2. Mild or moderate intensity (may inhibit, but does not prohibit activity)
3. Bilateral location
4. No aggravation by walking, stairs, or similar routine physical activity

C. Both of the following:

1. No nausea or vomiting (anorexia may occur)
2. Photophobia and Phonophobia are absent, or one but not both are present

Cervicogenic Headache

A. Pain localized to the neck and occipital region. May project to forehead, orbital region, temples, vertex or ears
B. Pain is precipitated or aggravated by special neck movements or sustained postures
C. At least one of the following:

1. Resistance to or limitation of passive neck movements
2. Changes in neck muscle contour, texture, tone or response to active and passive stretching and contraction
3. Abnormal tenderness of neck muscles

D. Radiological examination reveals at least one of the following

1. Movement abnormalities in flexion/extension
2. Abnormal posture
3. Fractures, congenital abnormalities, bone tumors, rheumatoid arthritis or other distinct pathology (not spondylosis or osteochondrosis)
Lecture 19 – Headaches Worksheet

Multiple Choice (choose the most correct answer)

1. Of the following, types of headaches, which one would include, as a symptom, both sensitivity to light and to noise?
   a. Tension-Type Headache (TTH)
   b. Sinus Headache
   c. Cluster Headache
   d. Migraine Headache

2. Which of the following drugs would be classified as a serotonin receptor agonist
   a. Timolol maleate
   b. Sumatriptan succinate
   c. Propranolol
   d. Dihydroergotamine

3. Several methods exist today in the treatment of migraines. These methods include:
   a. Nonspecific analgesics
   b. Specific therapy
   c. Prophylactic therapy
   d. All of the above

4. Of the following types of headache, which one generally occurs after an individual falls asleep?
   a. Tension-Type Headache (TTH)
   b. Sinus Headache
   c. Cluster Headache
   d. Migraine Headache

5. The term “brain freeze” is associated with
   a. The swelling or vasodilation of blood vessels
   b. The narrowing or vasoconstriction of blood vessels
   c. Mixed muscle contractions
   d. None of the above

6. Of the following statements, which one is false?
   a. Headache can be defined as a diffuse type of pain associated in different portions of the head
   b. Migraine triggers activate an already imbalance of chemicals in the brain
   c. Selective Serotonin Receptor Agonists are actually agents that are selective 5-HT1 receptor agonists
   d. Most headaches derive from intracranial sources

7. Of the following drugs, which one would be used in the prophylaxis treatment of migraine?
   a. Ergotamine tartrate
   b. Zolmitriptan
   c. amitriptyline
   d. Codeine
8. Which one of the following causes may lead up to a “secondary” type headache?
   a. Swelling or vasodilation of blood vessels
   b. Narrowing or vasoconstriction of blood vessels
   c. Severe hypertension
   d. None of the above

9. Which of the following characteristics would be indicative of an “aura”
   a. Visual change such as bright flashing lights
   b. Tingling sensation or numbness and/or weakness on one side of the face or body
   c. Speech problems or confusion
   d. All of the above

10. Of the following types of headaches, which one would include, pain accompanied by tightness in neck and shoulders?
   a. Tension-Type Headache (TTH)
   b. Sinus Headache
   c. Cluster Headache
   d. Migraine Headache

To submit your answers on-line go to the following link:

https://form.jotform.com/43176716843966

Tech Lectures® Copyright 2019