OROFACIAL PAIN

LECTURE 5

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Fifth Stage

Pain:

Is, an unpleasant sensory and emotional experience associated with actual or potential tissue damage .

Acute pain resulting from injury will generally initiate a reflex withdrawal thus ensuring minimal or no tissue damage (nociceptive pain).

Allodynia : The injured region becomes sensitive to even light touch

Hyperalgesia : Over reactive to painful stimuli

Orofacial pain (OFP)

Acute OFP is primarily associated with the teeth and their supporting structures. Most frequently, dental pain is due to dental caries, although a broken filling or tooth-abrasion may also cause dental sensitivity. Other oral pains are usually periodontal or gingival in origin.

Chronic OFP the term “chronic pain syndrome” has been used to describe a condition that may have started because of an organic cause but is now compounded by psychological and social problems.

Chronic orofacial pain (COFP) is a term used to describe painful regional syndromes with a chronic, unremitting pattern.

Clinically COFP may be subdivided into three main symptomatic classes

1- musculoskeletal

2- neurovascular

3- neuropathic

Musculoskeletal entities are dealt with **Temporomandibular Disorders.**

Chronic orofacial pain

1-Neurovascular pain

- Trigeminal Autonomic Cephalgias (TACs)
- Migraines

2-Neuropathic pain

- Trigeminal neuralgia (TN)
- Glosso pharyngeal neuralgia (GN)
- Facial post-herpetic neuropathy
- Burning mouth syndrome (BMS)
- Painful posttraumatic neuropathies
- Central post stroke pain

➢Trigeminal Autonomic Cephalgias (TACs)

TACs are primary headaches with a common clinical phenotype consisting of trigeminal pain and autonomic signs (AS) and include .

- ➢ Cluster headache (CH)
- ➢ Paroxysmal hemicrania (PH)
- ➢ Short-lasting unilateral, neuralgiform headache attacks with conjunctival injection and tearing (SUNCT)
- ➢ Short-lasting, unilateral, neuralgiform headache attacks with cranial autonomic features (SUNA)
- ➢ Hemicrania continua (HC)

Cluster Headache (CH)

With severe pain and major autonomic activation. The precise genetics of CH are unclear but is likely to involve an autosomal dominant gene.

CH typically appears between the ages of 20–29 years , seems to affect men more than women.

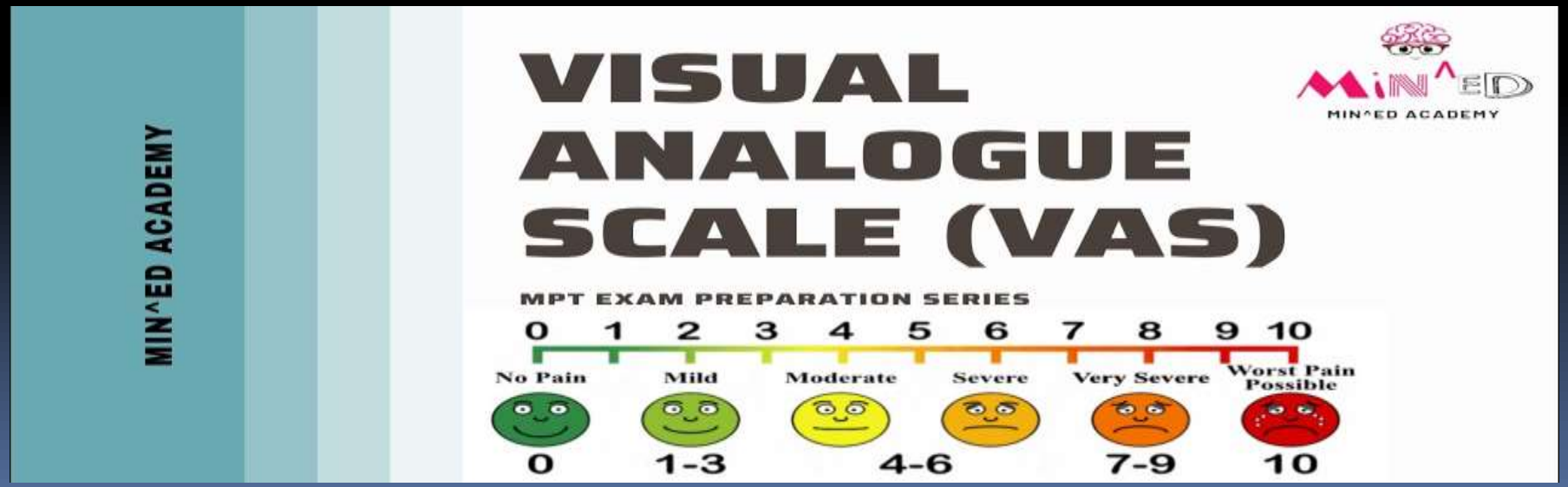
Episodic CH commonly occurs at least once daily for a period of weeks, at the same time of day or night. Active periods (or “clusters” of 6–12 weeks) are followed by a temporary remission that may last from weeks to years.

CH active periods are seasonal, occurring around spring or autumn.

Chronic CH repeated attacks recur over more than a year without remission or with remission periods lasting less than one month.

Features

- Pain in CH is usually periorbital or ocular.
- Pain is **unilateral** and in 20% of cases may **change sides** .
- A considerable number of CH patients report nocturnal attacks that wake them.
- Severity is rated as 8–10 on a visual analog scale (VAS) .
- Alcohol is a common precipitant of CH attacks during active cluster periods .



➢**Premonitory symptoms** may predict CH days before onset .
➢**CH prodromes** include **Autonomic signs (AS) ,** which include :

blurred vision, sensitivity to smells, nausea, dyspepsia, hunger, irritability, tiredness, tenseness, and mild pain or non-painful sensations in the area that subsequently becomes painful.

CH Treatment:-

1-Abortive symptomatic relief may be rapidly attained with **oxygen inhalation , Subcutaneous sumatriptan .**

2- Rapid transitional prophylaxis may be attained with **corticosteroids** that may be continued only for a limited period in selected patients. In both episodic and chronic CH .

3- prophylaxis is usually with **verapamil** , and **topiramate (anticonvulsant)** as second-line therapy.

➢ Remission periods may increase with time, and beyond the age of 65–75 active CH is rare

Short-lasting unilateral, neuralgiform headache attacks with conjunctival injection and tearing (SUNCT):-

- SUNCT syndrome is a unilateral headache/facial pain characterized by brief paroxysmal attacks accompanied by ipsilateral local AS, usually conjunctival injection and lacrimation

Feature

- SUNCT is a unilateral pain, usually ocular/periocular , but may involve most head areas.
- Pain spreading across the midline or changing sides is rare.
- Quality is stabbing or pulsating but sometimes electric or burning . Pain is moderate to severe and accompanied by ipsilateral conjunctival injection and lacrimation.
- More in male at 50 years of age

Short-lasting, unilateral, neuralgiform headache attacks with cranial autonomic features (SUNA):-

- Essentially the accompanying AS differentiate it from SUNCT.
- SUNA may be accompanied by either autonomic sign,

ipsilateral conjunctival injection or lacrimation but not both.

SUNCT/SUNA Treatment :-

- Lamotrigine (anticonvulsant) is the drug of choice and should be initiated at 25 mg/d then increased very slowly and reach target dose in ≥7 weeks.
- Other anticonvulsant drugs such as carbamazepine , topiramate , and gabapentin may induce some improvement.
- SUNCT may also respond to steroids.
- Surgical microvascular decompression (MVD) and percutaneous trigeminal ganglion compression for SUNCT.
- Spontaneous remissions have been observed and may last for several months

Hemicrania Continua (HC) :-

HC is now considered a part of the TAC family. As in other TACs, HC seems to be often misdiagnosed and mistreated .

Features

HC is a unilateral headache that has been present for >3 months and is daily and continuous. Pain is diffuse around half the head and face primarily in the frontal, temporal, and periorbital regions.

Two forms of HC have been described:-

1-The remitting form is characterized by headache that can last for some days followed by a pain free period lasting from 2 to 15 days.

2- continuous form.

Nocturnal attacks are reported in up to half of patients.

Treatment:-

- Indomethacin 75mg is totally effective and relieves pain within hours or 1–2 days ; other NSAIDs are less effective.
- Piroxicam beta-cyclodextrin is a good alternative

Migraine headache

- Migraine are moderate to severe pain, which is usually throbbing and often unilateral or bilateral (frontal, temporal, occipital) and intra orally referral to maxillary sinus . Associated features of nausea , sensitivity to light , sound and exacerbation with head movement.
- Migraine is more common in women.
- It may be preceded by an aura of neurological dysfunction , such as visual disturbances , vertigo , numbness , or weakness.
- In many patients , migraine is triggered by specific factors , such as menses, weather changes , irregular sleep , alcohol , or certain foods.

Clinical Feature of migraine

Common migraine : migraine without aura

classic migraine : migraine with aura

Causes of migraines :

- The exact cause of migraines is unknown, although they're thought to be the result of temporary changes in the chemicals, nerves and blood vessels in the brain.
- Around half of all people who experience migraines also have a close relative with the condition, suggesting that genes may play a role. Some people find migraine attacks are associated with certain triggers , which can include:
- Stress
- Tiredness
- Certain foods or drinks (e.g. Caffeine)
- Skipped of meals
- Physical Exertion

Etiology And Pathogenesis

Vascular Theory

The aura of migraine was once thought to be caused by cerebral vasoconstriction and the headache by reflex vasodilatation , which explained the throbbing quality of migraine and the relief of pain by ergots. It is now believed that the aura is caused by neuronal dysfunction rather than ischemia.

Treatment

There's no cure for migraines, but a number of treatments are available to help reduce the symptoms , these include:

- Painkillers : including over the counter medicines like paracetamol and ibuprofen
- Triptans medicines : that can help reverse the changes in the brain that may cause migraines
- Anti emetics medicines : often used to help relieve people's feeling of sickness (nausea) or being sick During an attack , many people find that sleeping or lying in a darkened room can help.

- Drugs that are useful in aborting migraine include ergotamine and sumatriptan , which can be given orally , nasally , rectally or parenterally.
- **Ergotamine Initial dose :** Oral, Sublingual (2 mg ergotamine) in fixed combination with caffeine given as quickly as possible after the first symptom of headache.
- Additional 1 mg doses can be given every 30 minutes until the headache has been aborted or until a total dose of 6 mg has been reached or 10 mg/week .
- These drugs must be used cautiously since they may cause hypertension and other cardiovascular complications.

Preventing migraines

- If you suspect a specific trigger is causing your migraines , such as stress or a certain type of food , avoiding this trigger may help reduce your risk of experiencing migraines.
- It may also help to maintain a generally healthy lifestyle, including regular exercise, sleep and meals, as well as ensuring you stay well hydrated and limiting your intake of caffeine and alcohol.
- Medicines used to prevent migraines include the anti seizure medicine topiramate and a medicine called propranolol that's usually used to treat high blood pressure. It may take several weeks before your migraine symptoms begin to improve.

Headache Location

TMJ
pain is at temples, in front of ears.

Sinus
pain is behind browbone and/or cheekbones.

Cluster
pain is in and around one eye.

Tension
pain is like a band squeezing the head.

Migraine
pain, nausea and visual changes are typical of classic form.

Neck
pain is at the top and/or back of head.

Neuropathic Orofacial Pain:-

Most common neuropathic OFP are :-

- Trigeminal Neuralgia (TN)
- Glossopharyngeal neuralgia (GN)
- Facial post herpetic neuropathy
- Burning mouth syndrome (BMS)
- Painful posttraumatic neuropathies
- Central poststroke pain

Trigeminal Neuralgia (TN):-

- Is an excruciating , short lasting , unilateral facial pain.
  The most common is the

1- Classical unrelated to pathology and most probably caused by neurovascular compression of the trigeminal nerve root.

2- Secondary forms related to a variety of clear pathologies including tumors, cysts, viral infection, trauma, and systemic diseases such as multiple sclerosis.

Feature

- Pain is paroxysmal, shooting , sharp, piercing , stabbing , or electrical.
- Attacks begin and end abruptly, lasting from a fraction of a second up to 2 minutes. Longer attacks, increasing with disease duration .

- Most paroxysms occur during waking hours, but may awaken the patient .
- Typically pain is precipitated by light touch at sites called “trigger areas.”

- Trigger areas are usually in the distribution of the affected trigeminal branch , usually the lips but may be extra trigeminal .

- Trigger factors such as noise, lights, and stress may also induce pain.

Treatment

Pharmacological

- Carbamazepine remains the drug of choice for TN.
- Initial low-dose therapy (100 mg with food) and a slow increase (by 100–200 mg) on alternate days will minimize side effects.

In responsive cases , therapeutic effects are observed rapidly or within three days. Titration to final dose (1200 mg/d or more) should continue slowly based on response and side effects.

Surgical

Surgery for TN is directed peripherally or centrally at the trigeminal ganglion or nerve root

Surgical procedures has the best prognosis when performed within seven years of TN onset

- **Cryotherapy** of peripheral branches may give pain relief for six months
- **Peripheral glycerol injection** has been employed , but success seems short term . Re injection is however possible with reportedly good results .

Glossopharyngeal Neuralgia (GN)

Although similarities with TN are prominent , GN is characterized by a milder natural history with the majority of patients going into remission

Features

- The glossopharyngeal (IX) nerve has two main sensory branches: the auricular (tympanic) and the pharyngeal .
- GN, involve pharynx or posterior tongue base are involved . Pain radiates to the inner ear or the angle of the mandible, and may include the eye , nose , maxilla , or shoulder and even the tip of the tongue .
- GN is a paroxysmal, unilateral , severe pain that is sharp , stabbing, shooting, or lancinating . Patients often feel a scratching or foreign body sensation in the throat.
- Trigger areas are located in the tonsillar region and posterior pharynx, and these display a refractory period .
- Swallowing, chewing, talking, coughing and/or yawning, sneezing, clearing the throat, and rubbing the ear activate these areas .

Treatment

- Carbamazepine is usually successful and is the favored medication. Alternatives include baclofen (mus. relaxant), gabapentin , lamotrigine and phenytoin.
- Patients with GN successfully treated with anticonvulsants may become resistant in which case there is a clear indication for surgery.

Neuropathic pain

- **Facial post herpetic neuropathy**
- **Facial Pain Associated With Herpes Zoster**

Acute Herpes Zoster

- Acute HZ (shingles) is a reactivation of latent varicella virus infection that may occur decades after the primary infection.
- HZ is a disease of the dorsal root ganglion and therefore induces a dermatomal vesicular eruption.
- Definitive diagnosis may be obtained by identification of viral DNA from vesicular fluid .
- The ophthalmic branch is affected in more than 80% of the trigeminal cases, particularly in elderly males, and may cause sight threatening keratitis.
- The vesicles and pain are dermatomal and unilateral and may appear intraorally when the maxillary or mandibular branches of the trigeminal nerve are affected .

Clinical Features

- Usually begins with a prodrome of regional pain, itching and malaise. Pain precedes typical vesicular eruption by <7 days, usually 2–3 days.
- The dermatomal vesicular or herpetic eruption will rupture and "dry out" over 7–10 days, but complete healing may last up to one month.
- Accompanying pain is moderate to severe (VAS 6) and may persist for 3-6 months .

Treatment

- Therapy is directed at controlling pain , accelerating healing , and reducing the risk of complications such as meningitis , Post herpetic neuropathy (PHN), and local secondary infection.
- Anti virals should be initiated within 72 hours from onset of rash , and will significantly decrease rash duration , pain severity , and the incidence of PHN. This is particularly effective in patients >50 years old. Fever and pain should be controlled initially by mild analgesics.
- Alternatively central analgesics may be used (amitriptyline or gabapentin).
- Use of glucocorticoids is controversial , but may help reduce acute pain; they should always be used together with antivirals .

Post herpatic neuralgia (PHN)

- Up to one-fifth of acute HZ patients will suffer persistent pain three to six months after acute HZ. By one year however only 5%–10% suffer pain. Advanced age (>50) .
- severe prodromal pain (VAS>5), severe acute pain, and severe rash are risk factors for persistent pain .

Treatment

- Early treatment of established PHN improves prognosis.
- Treatment options for PHN include tricyclic antidepressant (TCA) drugs, gabapentin and pregabalin , opioids , tramadol , and topical lidocaine patches.

Burning Mouth Syndrome (BMS)

- Is a poorly understood pain condition that is most probably neuropathic. The condition is also known as stomatodynia and is characterized by a burning mucosal pain with no significant physical signs and is common in postmenopausal women.
- BMS may be sub classified into:-

1- "primary" or idiopathic BMS for which a neuropathological cause is likely and cannot be attributed to any systemic or local cause

2- "secondary BMS" (SBMS) resulting from local or systemic pathological conditions.

- BMS is characterized by resistance to a wide range of treatments.

- Common aggravating factors include personal stressors, fatigue, and specific foods (acidic, hot, or spicy).
- More than two-thirds of the patients complain of altered taste sensation (dysgeusia) accompanying the burning sensation .
- in many cases described as a spontaneous metallic taste.
- Abnormal sensations, such as feeling of dry mouth, are common but true hyposalivation is less common and should be considered under secondary or symptomatic BMS .

Treatment of BMS

1- topical therapies may be effective in elderly, medically compromised patients. The most established is clonazepam (tranquilizers) (1mg) sucked and subsequently spat out three times daily .

2- Systemic therapies include paroxetin (antidepressant) (20mg/d) reduce pain and improve anxiety and depression .

Diagnostic test used for Dx OFP

- Any test to select is guided by history and physical examination :

1- CT and /or MRI to (rule out intracranial pathology)

2- TMJ radiography

3- Diagnostic occlusal appliance

4- Cervical spine films

5- Lab.(ESR, C-reactive protein)

6- Biopsy

7- VAS (visual analog scale)

THANK YOU FOR ATTENTION