

Dietitian CE

Migraines: Causes and Non-Pharmacological Treatments

Male and female sex hormones in primary headaches

1. Which of the following has a higher incidence in adult men compared to adult women?

- A. Tension-type headache
 - B. Cluster headache
 - C. Migraine
 - D. All types of headaches have a higher incidence in women than men
-

2. The incidence of migraine is similar in both sexes until the age of:

- A. 9
 - B. 11
 - C. 13
 - D. 15
-

3. Teenagers who suffer from headache are at greater risk of having headache in adulthood.

- A. True
 - B. False
-

4. Early menarche appears to be a risk factor for the development of migraine.

- A. True
 - B. False
-

5. Migraine with aura has an incidence peak between ages 12 to 13, while migraine without aura typically presents a few years earlier.

- A. True
 - B. False
-

6. Higher urinary levels of pregnandiol glucuronide, a metabolite of progesterone, are associated with a higher migraine frequency in girls:

- A. Before menarche**
 - B. After menarche**
 - C. Both before and after menarche**
 - D. Higher urinary levels of pregnandiol glucuronide are associated with lower migraine frequency in girls before and after menarche**
-

7. A prevalence peak of migraine is reached in women between the ages of:

- A. 15 and 25**
 - B. 25 and 35**
 - C. 35 and 45**
 - D. 45 and 55**
-

8. Neuroimaging studies have revealed sex-specific activation patterns, with an increased activation of the _____ in women, involved in pain sensation and affective processing.

- A. Insula only**
 - B. Precuneus only**
 - C. Both the insula and the precuneus**
 - D. Insula, precuneus, and hypothalamus**
-

9. Obese woman appear to have more than a twofold risk of episodic and chronic migraine.

- A. True**
 - B. False**
-

10. The levels of _____, a neuropeptide with a key role in migraine pathophysiology, are higher in women of reproductive age than in men.

- A. Neuropeptide gamma**
 - B. Cholecystokinin**
 - C. Glucagon-like peptide-1**
 - D. Calcitonin gene-related peptide**
-

11. A previous study found a protective role of the PROGINS polymorphism in the Caucasian population.

- A. True**

B. False

12. The probability of migraine to occur during the _____ period is twice as high compared to any other period of the menstrual cycle.

- A. Ovulation**
 - B. Perimenstrual**
 - C. Follicular**
 - D. Luteal**
-

13. Migraine associated with menstruation is mostly of the type with aura.

- A. True**
 - B. False**
-

14. Intramuscular injections of _____, administered before menstruation, postponed migraine attacks.

- A. Estrogen**
 - B. Progesterone**
 - C. Both estrogen and progesterone postponed migraine attacks**
 - D. Neither estrogen nor progesterone postponed migraine attacks**
-

15. Some studies suggest that phytoestrogens like _____ could have a beneficial effect on migraine.

- A. Soy isoflavone**
 - B. Dong quai**
 - C. Black cohosh**
 - D. Soy isoflavone, dong quai, black cohosh could all have a beneficial effect on migraine**
-

16. All of the following are possible contraceptive strategies to reduce headache, except:

- A. Extended-cycle combined hormonal contraception**
 - B. Progesterone-only contraception**
 - C. New generation hormones such as estradiol valerate / dienogest**
 - D. Combined hormonal therapies with high dosed estrogen**
-

17. There is evidence that tension-type headache is influenced by hormonal contraception.

- A. True
 - B. False
-

18. The hypothalamus is thought to be involved in _____ pathophysiology based on its periodic time locked occurrence.

- A. Tension-type headache
 - B. Cluster headache
 - C. Migraine
 - D. The hypothalamus is involved in all types of headaches
-

19. Both male and female cluster patients show high testosterone levels.

- A. True
 - B. False
-

20. Pituitary diseases are often associated with secondary headaches.

- A. True
 - B. False
-

21. Menopausal transition seems to negatively impact migraine frequency.

- A. True
 - B. False
-

22. The amount of estrogen withdrawal episodes is correlated to headache attack frequency in women with menstrual migraine in:

- A. Early perimenopause
 - B. Late perimenopause
 - C. Early postmenopause
 - D. Late postmenopause
-

23. Another potential mechanism that can increase menstrual migraine attack frequency is:

- A. Vitamin B12 deficiency
 - B. Vitamin K deficiency
 - C. Iron deficiency
 - D. Magnesium deficiency
-

24. The premenstrual syndrome seems a predictor of migraine attack frequency increase for women entering menopause.

- A. True**
 - B. False**
-

25. Hormone replacement therapy should be stopped immediately if there is any of the following, except for:

- A. A new onset migraine with aura.**
 - B. A new onset migraine without aura.**
 - C. A clear increase in frequency or worsening of migraine with aura.**
 - D. Transitory ischemic attack or other vascular pathology.**
-

26. Which of the following seems to reduce migraine frequency?

- A. Natural menopause**
 - B. Surgically induced menopause**
 - C. Both natural and surgically induced menopause**
 - D. Neither natural nor surgically induced menopause**
-

27. All of the following are the most common risk factors for tension-type headache, except for:

- A. Stress**
 - B. Fatigue**
 - C. Sleep disturbance**
 - D. Menstruation**
-

28. The prevalence of tension-type headache in premenopausal women is reported to be higher than in postmenopausal women.

- A. True**
 - B. False**
-

29. According to the literature the course of cluster headache is biphasic, with the first peak of onset seen around the age of 20 and the second at age:

- A. 30 to 40**
 - B. 40 to 50**
 - C. 50 to 60**
 - D. 60 to 70**
-

30. All studies show that headache is more prevalent in women compared to men at all ages, even among the elderly.

- A. True**
 - B. False**
-

31. Migraine pain has been linked to:

- A. Cortical spreading depression**
 - B. The neurovascular system**
 - C. Both cortical spreading depression and the neurovascular system**
 - D. Neither cortical spreading depression nor the neurovascular system**
-

32. HRT is contraindicated from _____ years after menopause or in women aged 60 years or older due to its potential cardiovascular side effects.

- A. 4**
 - B. 6**
 - C. 8**
 - D. 10**
-

33. A study has shown that male-to-female transsexuals who use antiandrogens to suppress male sex characteristics and estrogens to induce female sex characteristics have migraine rates similar to genetic females.

- A. True**
 - B. False**
-

34. The characteristic physical attributes of cluster headache patients is due to high testosterone levels.

- A. True**
 - B. False**
-

Novel hypotheses emerging from GWAS in migraine?

35. The genetic contribution seems stronger in the more common migraine without aura than migraine with aura subtype.

- A. True**
 - B. False**
-

36. Which of the following is a potent vasoconstrictor that acts on smooth muscle cells and has previously been implicated in migraine?

- A. CCM2L**
 - B. MED14**
 - C. ET-1**
 - D. NOTCH3**
-

37. Homeostasis of _____ may contribute to migraine susceptibility.

- A. Metal ions**
 - B. Sex hormones**
 - C. Blood glucose**
 - D. Angiotensin**
-

Migraine-provoking substances evoke periorbital allodynia in mice

38. Occupational exposure to, or treatment with, organic nitrates has long been known to provoke headaches.

- A. True**
 - B. False**
-

39. The ability of glyceryl trinitrate to provoke the mild / early headache is temporally associated with the short-lived release of _____ and ensuing vasodilation.

- A. Estrogen**
 - B. Renin**
 - C. Nitric oxide**
 - D. Aldosterone**
-

40. Vasodilation is elicited by a majority of the migraine provoking agents proving that the vascular response is essential for generating delayed migraine attacks.

- A. True**
 - B. False**
-

41. Which of the following prostaglandins was unable to evoke migraine-like attacks in patients?

- A. PGE2**
- B. PGF2-alpha**

C. PGI₂

D. All prostaglandins induce headaches and migraine-like attacks in humans

42. Histamine, a key proinflammatory and allergic mediator with a proalgesic role provokes migraine-like attacks in patients.

- A. True**
 - B. False**
-

43. All vasodilators tested evoked allodynia, thus indicating that vascular activity is sufficient to elicit pain.

- A. True**
 - B. False**
-

Quantitative magnetic resonance imaging of the upper trapezius muscles - assessment of myofascial trigger points in patients with migraine

44. Muscular pain in the _____ area has shown to be particularly common in subjects suffering from migraine.

- A. Jaw and temporal**
 - B. Eye and temporal**
 - C. Forehead**
 - D. Neck and shoulder**
-

45. Evidence of an important role of mTrPs of the _____ area in the context of migraine is further provided by the finding that migraine attacks can be triggered by manually applied pressure to these points.

- A. Jaw**
 - B. Temporal**
 - C. Neck**
 - D. Shoulder**
-

46. Migraine has partially been attributed to nociceptive myofascial inputs that increased cortical neuronal excitability, with reported higher pressure pain thresholds of upper trapezius muscles in subjects with migraine when compared to controls without migraine.

- A. True**
 - B. False**
-

47. EMG revealed that intramuscular activity was higher _____ at mTrPs when compared with other sites.

- A. At rest
 - B. During contraction
 - C. Both at rest and during contraction
 - D. Intramuscular activity was lower at mTrPs when compared with other sites
-

The effect of aerobic exercise on the number of migraine days, duration and pain intensity in migraine: a systematic literature review and meta-analysis

48. The use of a prophylactic treatment is recommended if:

- A. Headache is present more than 4 days per month.
 - B. Disability is present despite acute medication.
 - C. Headache is present more than 2 days per month when acute medication is not effective.
 - D. The use of prophylactic treatment is recommended for all of the above situations.
-

49. Moderate quality evidence indicates that, in patients with migraine, aerobic exercise therapy decreases:

- A. The number of migraine days
 - B. Pain intensity of migraine attacks
 - C. Duration of migraine attacks
 - D. All of the above
-

50. Based on this study's meta-analysis, there is moderate evidence that aerobic exercise can lead to a decrease of _____ migraine days per month.

- A. 0.6
 - B. 1.8
 - C. 2.4
 - D. 3.5
-

51. Topiramate and tricyclic antidepressants show similar results compared to aerobic exercise in decreasing the number of migraine days per month.

- A. True
 - B. False
-

CGRP and migraine from a cardiovascular point of view: what do we expect from blocking CGRP?

52. Effective migraine treatment drugs must pass through the blood-brain barrier.

- A. True**
 - B. False**
-

53. Calcitonin gene-related peptide receptors are located in the:

- A. Central nervous system**
 - B. Peripheral nervous system**
 - C. Cardiovascular system**
 - D. CGRP receptors are located in the central and peripheral nervous system as well as the cardiovascular system including blood vessels and the heart**
-

54. CGRP has the capability to stimulate the production of _____ by acting via a receptor located on the endothelium, eventually leading to relaxation of vessels.

- A. cAMP**
 - B. NO**
 - C. Histamine**
 - D. Prostaglandin E2**
-

55. Because CGRP acts as an extremely potent vasodilator, it has a pivotal role in the physiological regulation of systemic blood pressure.

- A. True**
 - B. False**
-

56. CGRP causes beneficial effects on physiological cardiac hypertrophy helping the heart to distinguish physiological, exercise-induced from pathological stresses.

- A. True**
 - B. False**
-

57. Which of the following evokes CGRP release from sensory nerves and is reported to protect against myocardial injury by ischemia-reperfusion?

- A. Estrogen**
- B. Magnesium**

- C. Vitamin D
 - D. Capsaicin
-

58. CGRP plasma levels are higher in women than in men.

- A. True
 - B. False
-

Patterns of medicinal cannabis use, strain analysis, and substitution effect among patients with migraine, headache, arthritis, and chronic pain in a medicinal cannabis cohort

59. Compared to 400 mg of Ibuprofen, 0.5 mg Nabilone, a synthetic cannabinoid, was superior in reducing:

- A. Daily analgesic intake
 - B. Pain intensity
 - C. Level of medication dependence
 - D. Nabilone was superior in reducing daily analgesic intake, pain intensity, and level of medication dependence
-

60. The primary endogenous cannabinoid receptor ligands are _____ derivatives and work via retrograde signaling receptor activation.

- A. Arachidonic acid
 - B. Opioid
 - C. Glutamate
 - D. THC
-

61. The CB1 receptor is the most abundant G protein-coupled receptor in the brain and one of the most abundant in both the peripheral and central nervous system.

- A. True
 - B. False
-

62. THC is 20 times more anti-inflammatory than:

- A. Hydrocortisone
 - B. Aspirin
 - C. Ibuprofen
 - D. Diclofenac
-

63. Cannabinoids and terpenes influence the activity of one another, resulting in strain-specific characteristics, effects, and responses.

- A. True**
 - B. False**
-

64. The World Health Organization announced that in humans, CBD exhibits no evidence for abuse or dependence potential, and there is no evidence of public health-related problems associated with the use of pure CBD.

- A. True**
 - B. False**
-

65. Which of the following terpenes is the most commonly occurring terpene in nature and has anti-inflammatory effects in human chondrocytes, suggesting anti-osteoarthritic activity?

- A. D-limonene**
 - B. Beta-myrcene**
 - C. Alpha-pinene**
 - D. Beta-caryophyllene**
-

66. Which of the following terpenes increases the metabolic turnover of dopamine in the hippocampus and serotonin in the prefrontal cortex and striatum, suggesting that anxiolytic and antidepressant-like effects may occur by the suppression of dopamine activity related to enhanced serotonergic neurons?

- A. D-limonene**
 - B. Beta-myrcene**
 - C. Alpha-pinene**
 - D. Beta-caryophyllene**
-

67. When comparing headache and migraine to non-headache groups, Hybrid strains were preferred in which group?

- A. Insomnia / sleep disorders**
 - B. Mental health conditions / PTSD**
 - C. Gastrointestinal disorder / Crohn's Disease**
 - D. Arthritis**
-

68. The positive ID Migraine and headache as primary symptom patients most commonly preferred the _____ Hybrid strain specifically, which is a high THC / THCA, low CBD / CBDA strain with beta-caryophyllene followed by beta-myrcene as the

predominant terpenes.

- A. Afghani
 - B. Lemon Sour Diesel
 - C. Pink Kush
 - D. OG Shark
-

69. The “opioid-sparing effect” of cannabinoids has been well described with extensive supporting evidence showing that combining cannabis with opiates decreases opiate dose requirements.

- A. True
 - B. False
-

70. Vaporizing or joint use were the primary methods of use across all groups, including migraine and headache, likely reflecting the need for a quick acting inhaled or non-orally ingested therapy in migraine attacks before severe pain and nausea / vomiting become prominent.

- A. True
 - B. False
-

Efficacy and safety of exogenous ketone bodies for preventive treatment of migraine: A study protocol for a single-centered, randomized, placebo-controlled double-blind crossover trial

71. There is evidence for reversible abnormalities in mitochondrial functioning in migraine and treatment with _____ has been shown to have migraine-protective effects.

- A. Iron and vitamin D
 - B. Riboflavin and coenzyme Q10
 - C. Niacin and omega-3 fatty acids
 - D. Thiamin and vitamin B12
-

72. Lactic and pyruvic acid, markers of mitochondrial disease, have been found to be increased in migraineurs.

- A. True
 - B. False
-

73. Preliminary evidence suggests that the migraine-protective effect may outlast the

duration of ketosis for those on the ketogenic diet. A diet high in _____, which simulates the metabolic effects of starvation.

- A. Fat
 - B. Protein
 - C. Carbohydrate
 - D. Fiber
-

Saliva molecular inflammatory profiling in female migraine patients responsive to adjunctive cervical non-invasive vagus nerve stimulation: the MOXY Study

74. Non-invasive vagus nerve stimulation demonstrated the capability to effectively act as adjunctive prophylaxis and rescue intervention in episodic and chronic migraine.

- A. True
 - B. False
-

75. Transcutaneous stimulation of the auricular branch of the vagal nerve at 25 Hz promoted a significantly larger reduction of chronic migraine frequency compared to 1 Hz.

- A. True
 - B. False
-

76. Compared to sham stimulation in healthy individuals, nVNS significantly decreased serum concentrations of:

- A. IL-1 beta
 - B. IL-6
 - C. IL-10
 - D. IL-24
-

77. Application of painful, facial electrocutaneous stimulation and adjunctive capsaicin-driven inflammation increased oxytocin expression in CGRP-containing trigeminal ganglion neurons, indicating the important role of oxytocin in migraine pathophysiology.

- A. True
 - B. False
-

78. How many weeks of adjunct nVNS therapy were required to significantly decrease migraine severity and frequency in patients with episodic migraine (with / without aura)?

- A. 4**
 - B. 6**
 - C. 8**
 - D. 10**
-

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