

Bonimags

- Enhance the antimigraine properties of sodium valproate in combination therapy and reduce the valproate dose for prophylaxis of migraine.¹
- Increase the effectiveness of ibuprofen & acetaminophen in migraineur and reduce the migraine attacks, serious side effects & the cost of treatment.¹
- Magnesium citrate is preferred oral magnesium formulation for migraine prevention.²
- AHS* suggests daily magnesium intake is a safe and cost effective component in migraine prevention with level of evidence B.³



BONIMAGS[®]



RX Code: 81828

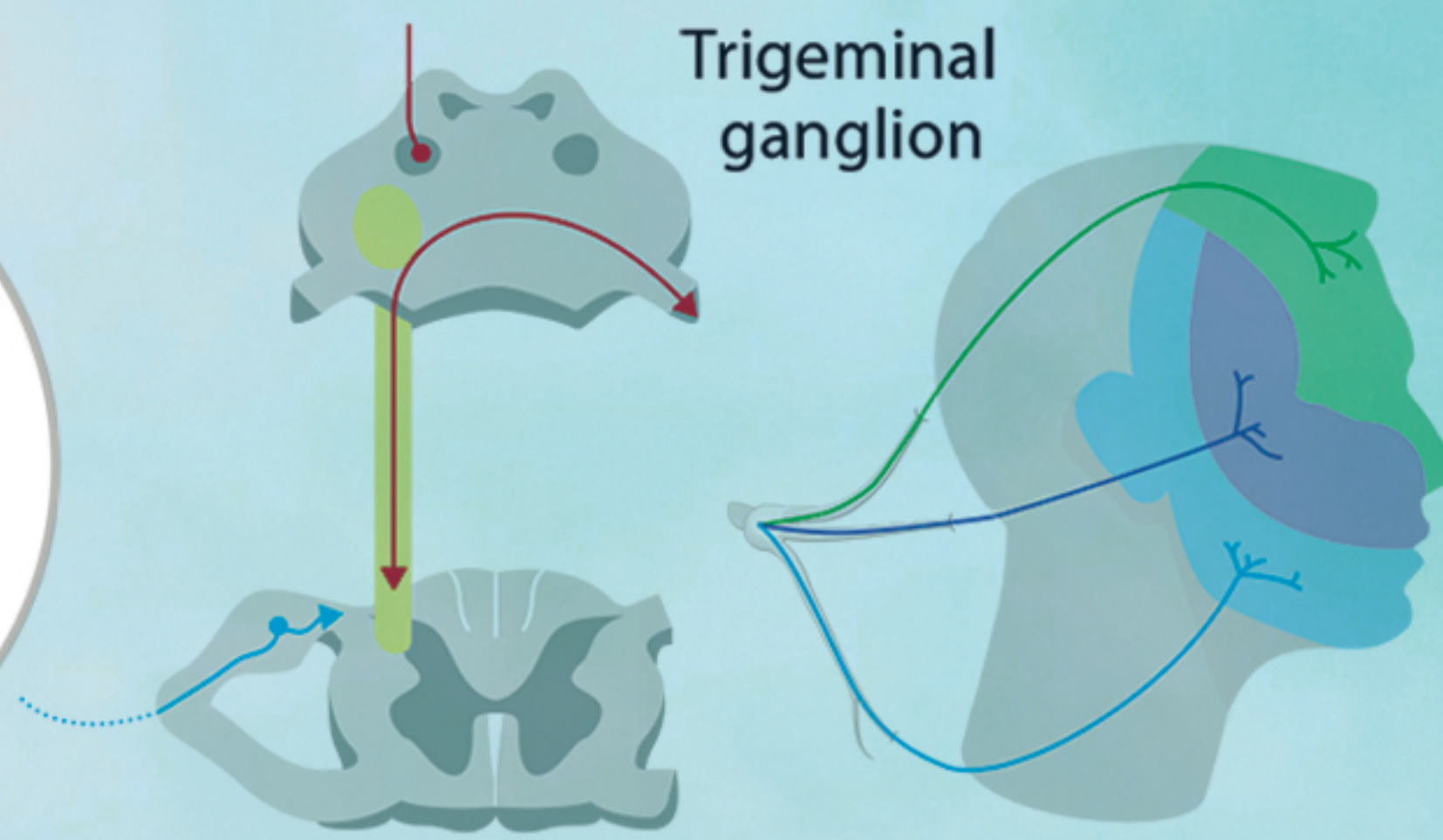
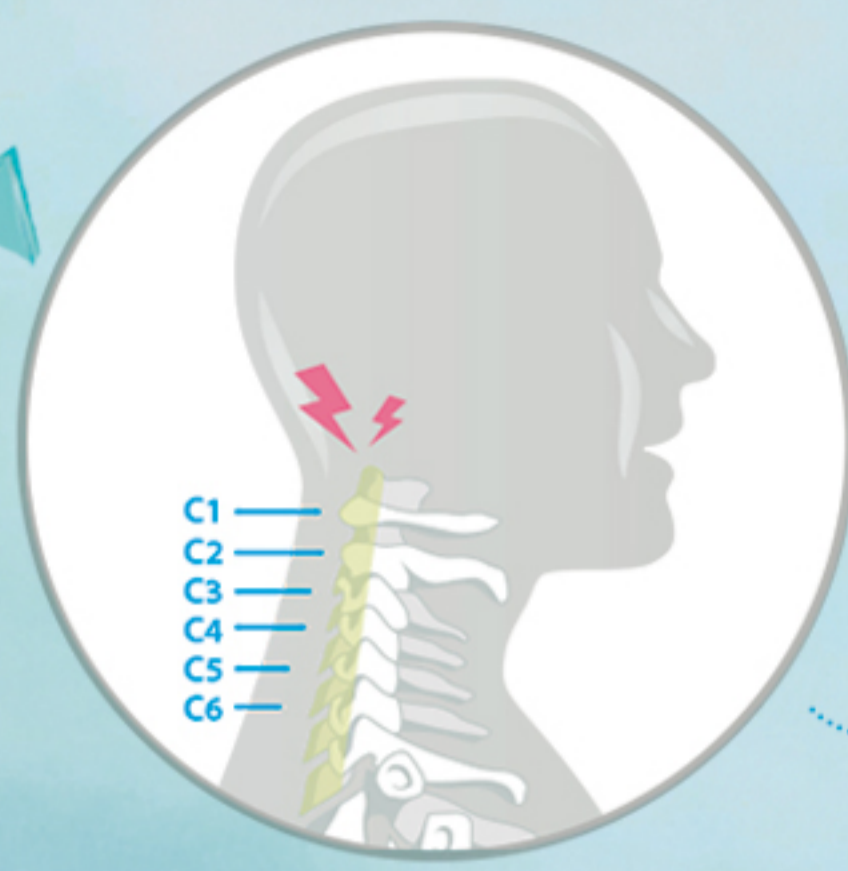
* American Headache Society

Key mechanisms of the low Mg²⁺ CNS levels¹

Head and Neck Pain

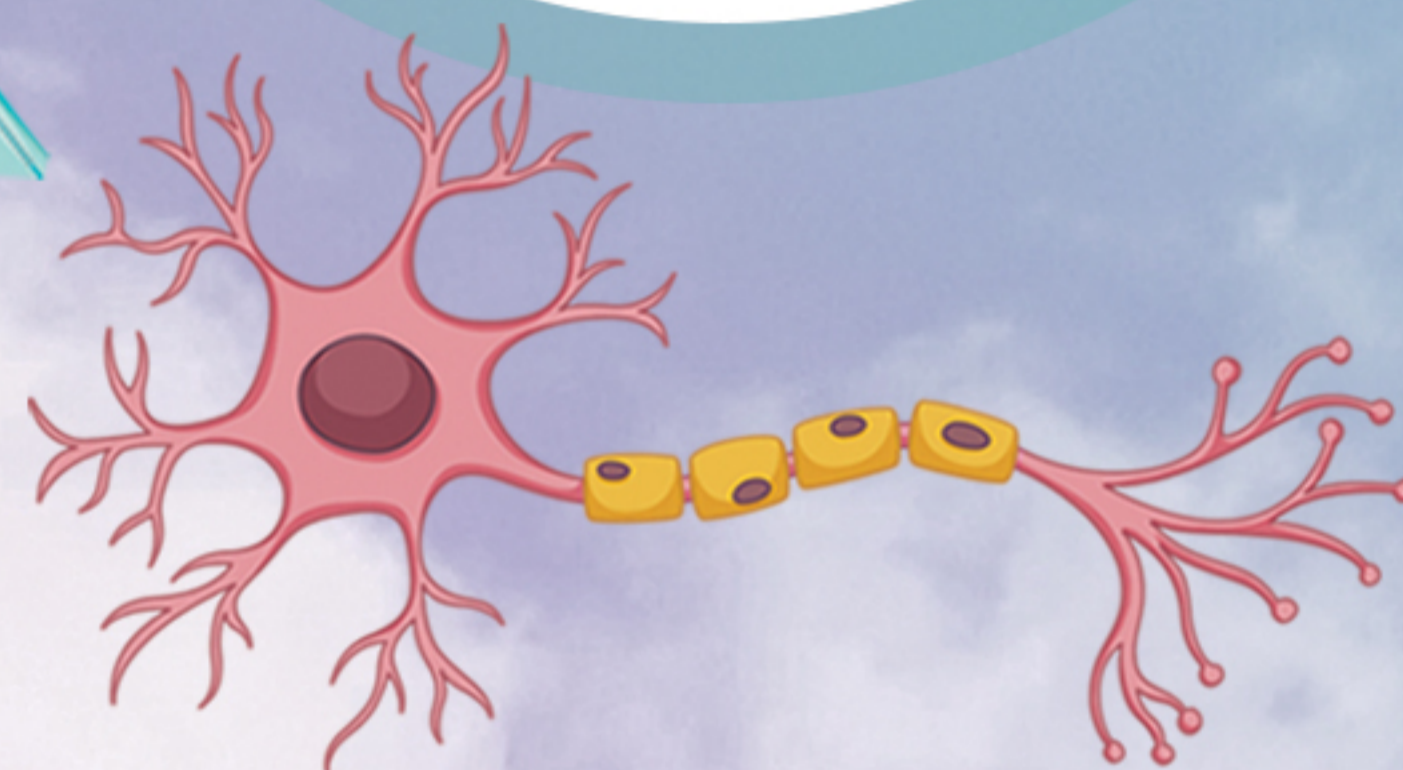
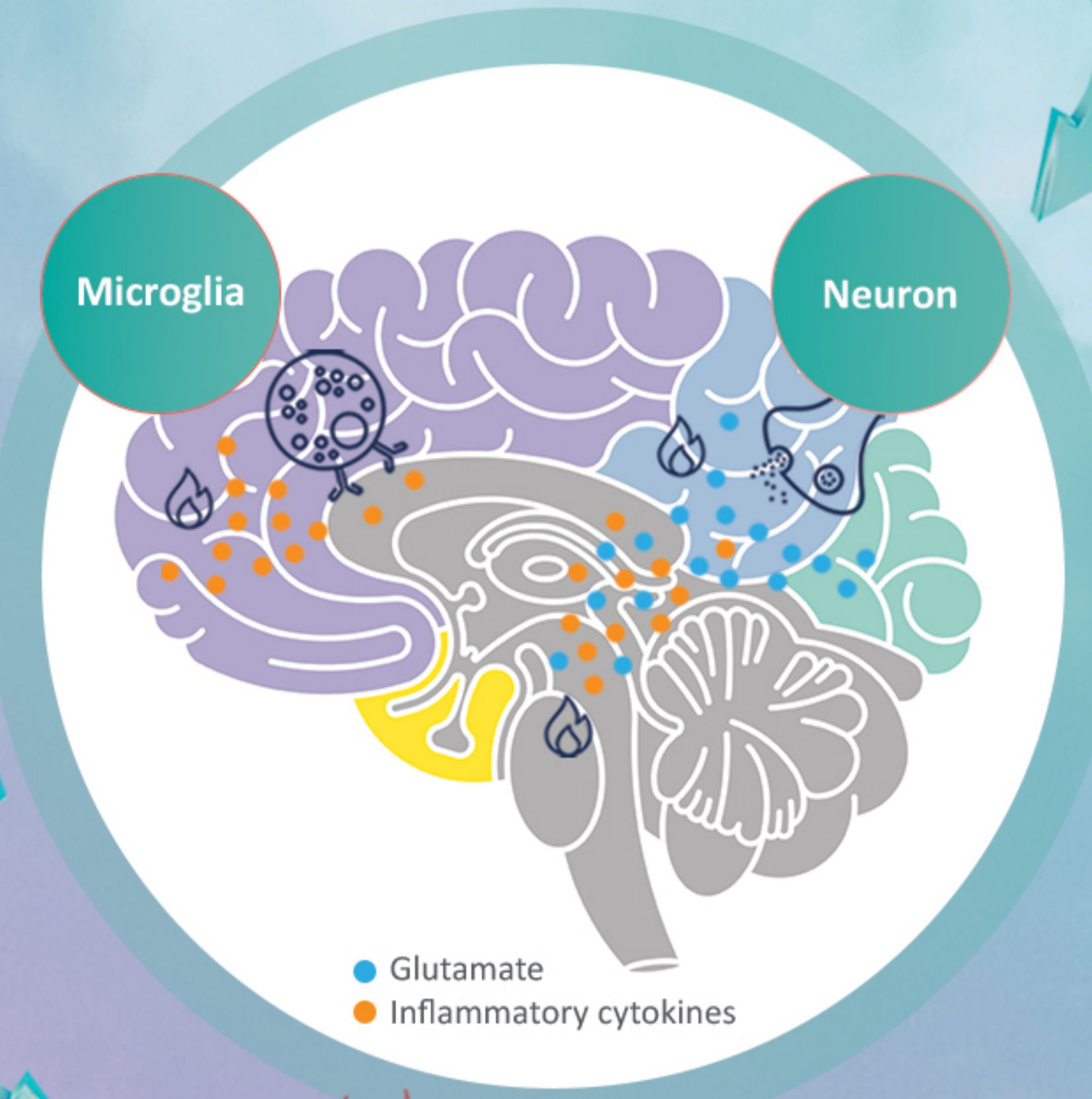
Upper cervical nerves

Trigemino-cervical complex

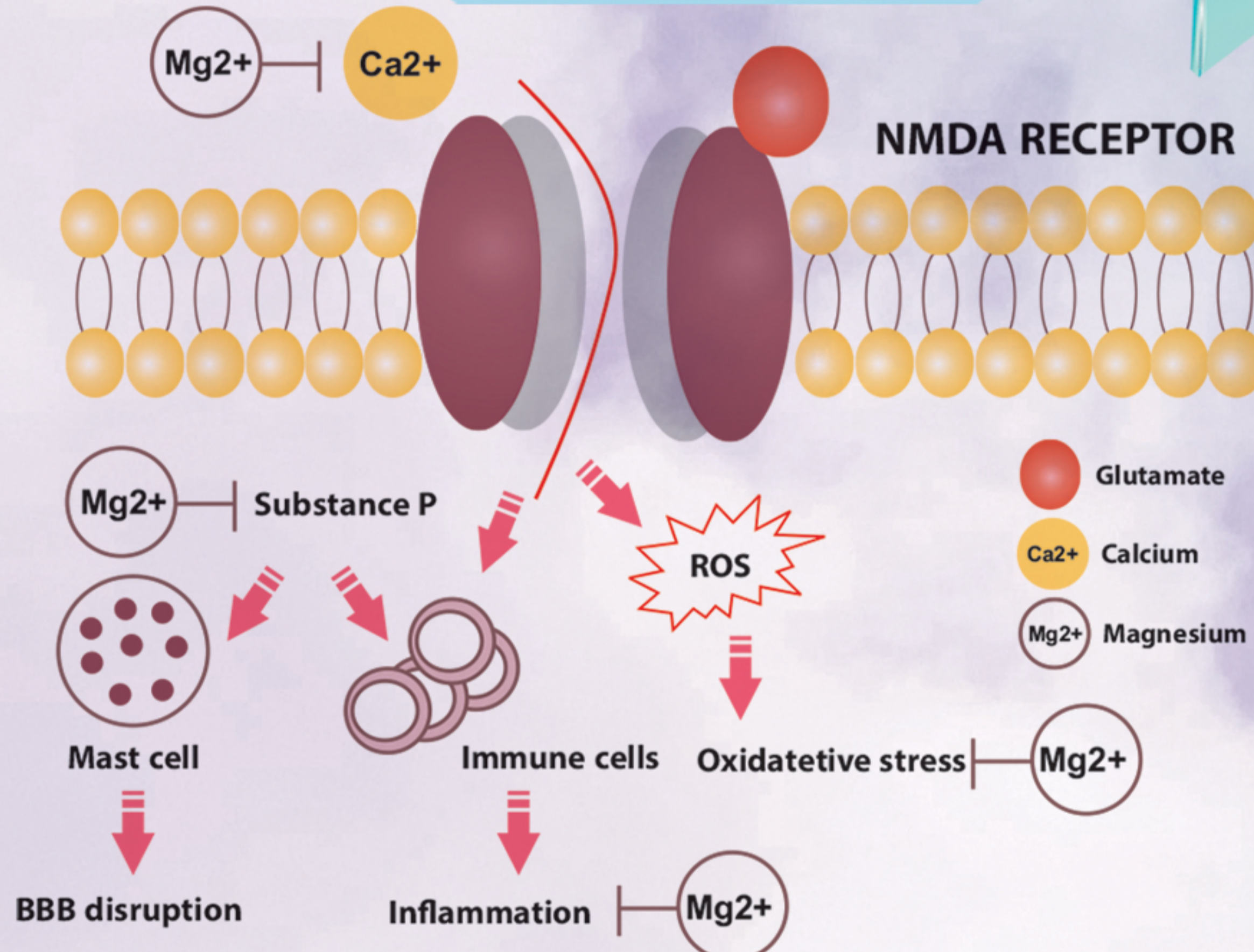


Headaches and Migraines

Trigemino-vascular neuroinflammatory cascade



Excitotoxicity



1

- Remove the Mg²⁺ blockade of the NMDA channel
- Induce influx of calcium & ↑ calcium concentration
- Resulting in ↑ Neural membrane potential

↑ Glutamate pain neurotransmission activity at the NMDA receptor¹

↓ GABA_A receptor activity² (Anxious activity)

Hyper-excitation of neurons happen due to NMDA over-activation and contribute to neurological symptoms (excitotoxicity), as well as the psychiatric symptoms

2

↑ Activity of ROS³ and generation of vasoactive peptides as: CGRP⁴, Substance P,...

↑ Mast cell degranulation & release inflammatory mediators as interleukin & TNF-α⁵

- Resulting in vasodilation
- Promote ROS-mediated cell death and Schwann cells apoptosis

Resulting in meningeal neurogenic inflammation, diabetic peripheral neuropathy (DPN), motor neuron death in neonatal sciatic nerve injury & migraine

4

- Mitochondrial calcification
- Inhibiting both aerobic & anaerobic glycolysis

Disabling the process of ATP synthesis within the mitochondria

Ultimately inducing the chances of cell death caused by reduced energy production in brain and also fibromyalgia

5

Inhibiting formation of the myelin sheath, nerve regeneration & neural stem cells proliferation

Prevent axons growth and synapse signal transduction

↓ The survival and function of neurons

1-N-methyl-D-aspartate receptor
2-Gamma aminobutyric acid A receptor
3-Reactive oxygen species
4- Calcitonin gene-related peptide
5-Tumor necrosis factor-α
6-5-Hydroxytryptamine

Conclusion: Due to magnesium deficiency as a risk factor for migraine occurrence, the use of oral magnesium supplementation represents an effective & well-tolerated addition for the treatment of headache and migraine prevention.

References

- 1-Izabela Domitrz and Joanna Cegielska, Nutrients 2022.
- 2-Sultan M. Alghadeer, Indonesian J. Pharm. 2016.
- 3-American Headache Society, 2021.



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