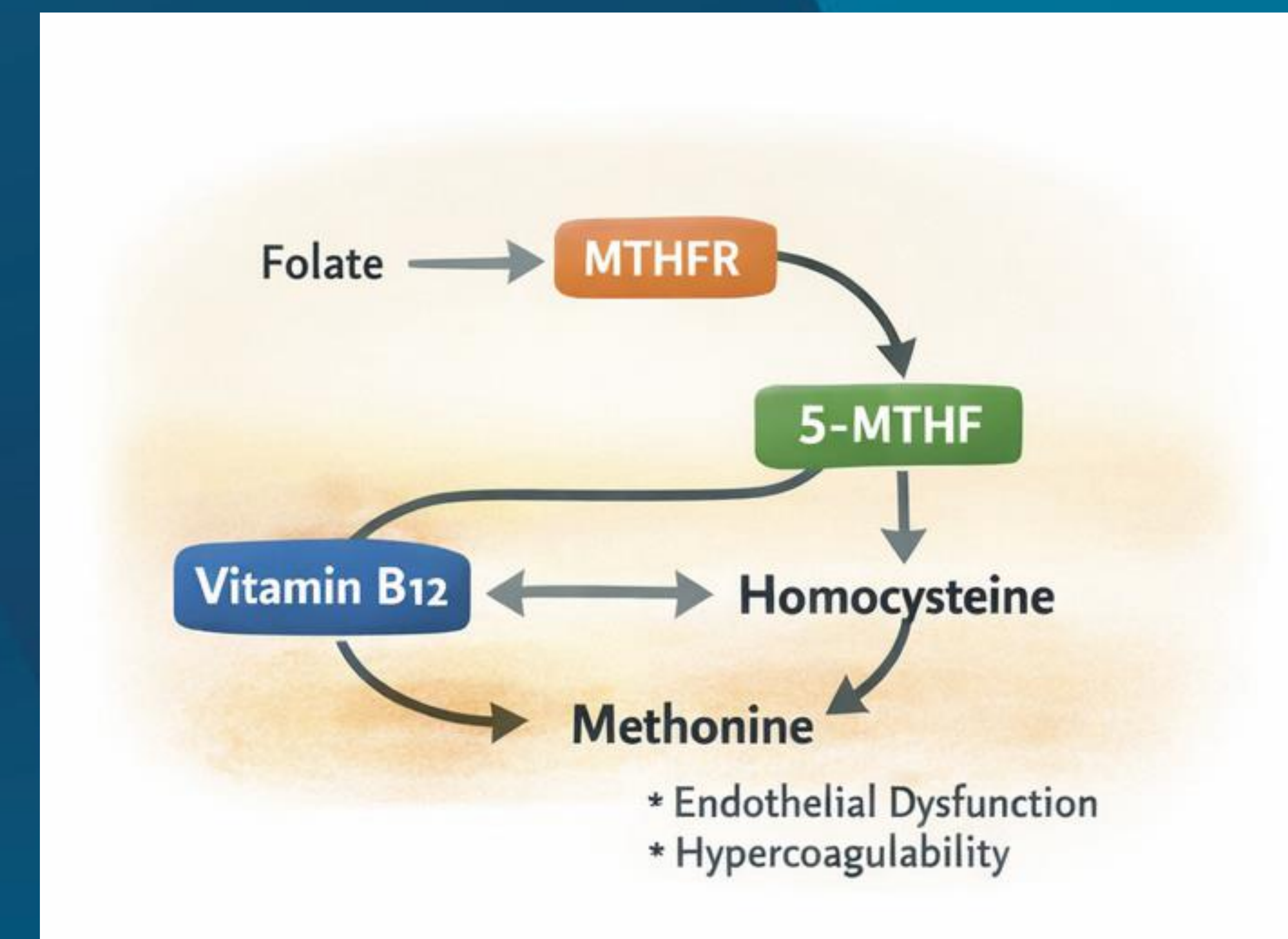


Is Nitrous Oxide Contraindicated in Patients with MTHFR Gene Mutations?

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Background:

- MTHFR: facilitates re-methylation of homocysteine-> methionine. True enzyme absence is rare
- Enzyme polymorphisms most common (60-70% population)
- Hyperhomocysteinemia: hypercoagulable state, endothelial injury, impaired DNA synthesis
- Nitrous Oxide: inhibits Vit. B12-> impairs homocysteine metabolism



Case Presentation:

- 30-year-old G1P0**
- PMH: POTS, EDS, Narcolepsy**
- Precipitous labor-> N2O for laceration repair**
- Disclosure of MTHFR polymorphism**
- Multidisciplinary meeting**
- MTHFR polymorphisms unlikely to result in clinically meaningful elevations of homocysteine**
- Conclusion: no EMR or clinical restriction of N2O use for common polymorphisms**



Teaching Points:

- N₂O: GABA agonist & NMDA antagonist, helpful adjunct in obstetric anesthesia
- Short term administration with common polymorphisms rather than total enzyme depletion likely safe
- Hard stops are not supported for common variants
- Clinical decisions should be evidence-based

