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Post-Operative Nausea and Vomiting
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Introduction
- Post-operative nausea and vomiting (PONV) is any nausea or vomiting that follows immediately after and up to 48 hours after surgery (Pierre & Whelan, 2012).
- PONV is one of the biggest and most common complaints and one out of three surgical patients will experience it (Pierre & Whelan, 2012).
- It is debilitating and can cause serious consequences to the patient and to the hospital.

Pathophysiology
- PONV is complex and not well understood.
- The vomiting center is stimulated by the glossopharyngeal, hypoglossal, and vagal nerves.
- The chemoreceptor trigger zone (CRTZ) and the nucleus tractus solitaries (NTS) are located in the brain stem and send signals to the vomiting center (Pierre et al., 2012).
- Vagal afferent nerves, vestibular system, and the limbic system can stimulate the vomiting center (Chatterjee et al., 2011).
- There are several receptors that will stimulate nausea and vomiting.
- mACh receptors signal the vomiting center to cause nausea and vomiting.
- Circulating substances in the blood, such as toxins, activates D1 and SHT3 in the CRTZ which sends signals to the vomiting center (Hasudungan, 2013).
- Motion sickness activates the vestibulocochlear nerve, stimulating H1 and mACh receptors, which then stimulates the CRTZ, and then the vomiting center (Hasudungan, 2013).
- The higher center of the brain is activated by painful stimuli, rancid smells, and corrupt scenes which activate the vomiting center (Hasudungan, 2013).
- Vagal sensory nerve fibers in the stomach are stimulated from certain foods or toxins that irritate the gastric lining which then stimulate the vomiting center (Hasudungan, 2013).
- The vomiting center can be triggered by opioids, volatile anesthetics, drug reactions, anticholinergics, nitrous oxide, dehydration, anxiety, pain, and motion.

Pathophysiological Significance
- Anesthesia providers need to be aware of the risk factors, pathophysiology, high risk medications, and preventative strategies for PONV.
- By knowing the pathophysiology of PONV and getting a detailed history from the patient, the anesthesia provider can determine the appropriate multimodal approach for each individual patient, and decrease the chance of the patient getting PONV.

Conclusion
- PONV prevention is essential for safe patient care.
- The CRNA should have a planned multimodal approach, specified for each patient.
- One third of patients without prophylaxis will develop PONV (Chatterjee et al., 2011).
- Consequences of PONV include delayed discharge from PACU, unanticipated hospital stays, pulmonary aspiration, patient discomfort, and dehiscence of surgical incision (Chatterjee et al., 2011).
- Anesthesia provides can significantly improve the quality of patient care and satisfaction if they are able to identify high-risk patients and know the appropriate prophylactic treatment (Chatterjee et al., 2011).

References

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