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Dilemma of Dantrolene: A life-saving drug unavailable in Pakistan

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Malignant hyperthermia (MH) is brought on by a number of anaesthetic drugs, primarily succinylcholine and inhalation anesthetics.[1] It is a hypermetabolic reaction in those who are genetically predisposed. The pathophysiology of MH is associated with rise in myoplasmic calcium, which in turn triggers metabolic reactions that ends in hypermetabolism. This includes a rise in heart rate, a rise in body temperature, additionally acidosis.[2] Dantrolene is the only specific treatment for MH crises currently available. It is a post-synaptic muscle relaxant that reduces the excitation-contraction coupling of muscle cells by inhibiting the release of Ca^{2+} ions from the sarcoplasmic reticulum. Literature cites that in absence of this drug, mortality may reach up to 80%.[3] Studies are reporting an incidence of MH ranging from 1:10,000 to 1:150,000. Anesthesiologists are familiar with these rare genetic disorders and most might have encountered one or two cases in there career.[4]

The Malignant Hyperthermia Association of the United States (MHAUS) has recommended that Dantrolene be injected into suspected patients within 10 minutes.[5] Dantrolene is regrettably unavailable in Pakistan. The main obstacles to the drug's accessibility are its high price, lack of local production, no directions from authorities to make its availability a necessary requirement and its short shelf life. Dantrolene vials have a two-year shelf life on average. An initial dose of Dantrolene sodium for an adult patient requires approximately 12 vials at a dosage of 20 mg each vial. Following that, another 24 vials would be needed.[6]

This unavailability of such an important life-saving drug in majority of the hospitals in Pakistan raises serious concerns for all health care providers specially anesthetists and more importantly this puts our patients at risk. Early recognition of signs in patients is critical for anesthetists to start supporting therapies immediately, so favorable outcome can be achieved for patients, but for most the treatment is limited to supportive as drugs required for treatment is absent.

Anesthesiologists are asked to report MH episodes, and there is an urgent need to establish a telephone hotline in the nation that is accessible to all citizens and a national MH website that is accessible from anywhere in the country. Since this complication is uncommon and has terrible effects, it is important to establish a repository where all instances may be reported and made readily accessible to the entire health care community as needed.

In conclusion, Pakistan where Dantrolene is not available; treatment of malignant hypothermia is a major challenge. Early warning and recognition with prompt and effective treatment are essential for patients.

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REFERENCES:

1. Blais A. Succinylcholine, malignant hyperthermia and rhabdomyolysis. CMAJ. 2022;194(25):E878. DOI: https://doi.org/10.1503/cmaj.146480-l
2. Neto CN, Neville MF, da Silva HC. Anesthesia for malignant hyperthermia susceptible patients. InTreatments, Mechanisms, and Adverse Reactions of Anesthetics and Analgesics 2022 (pp. 3-14). Academic Press. https://doi.org/10.1016/B978-0-12-820237-1.00001-6
3. Dar IS, Ashraf M. Pathophysiology of malignant hyperthermia. Perioperative Anaesthetic Emergencies. 2021:272.
4. Bin X, Wang B, Tang Z. Malignant Hyperthermia: A Killer If Ignored. Journal of PeriAnesthesia Nursing. 2022 Apr 10. https://doi.org/10.1016/j.jopan.2021.08.018
5. Hopkins PM, Girard T, Dalay S, Jenkins B, Thacker A, Patteril M, McGrady E. Malignant hyperthermia 2020: Guideline from the Association of Anaesthetists. Anaesthesia. 2021; 76(5):655-64. https://doi.org/10.1111/anae.15317
6. Smith A. Donating Dantrolene: Development and Implementation of a Malignant Hyperthermia Program in a Scarce Resource Setting. AANA journal. 2022;90(4).