Seizures Linked To Surgery Drugs Can Be Prevented

Two drugs commonly given during cardiac surgery can lead to convulsive seizures, but anesthetics can help cut the risk, according to new research from the Faculty of Medicine at the University of Toronto.

Patients undergoing complex heart operations or trauma surgery are often given tranexamic acid (TXA) and aminocaproic acid (EACA) to reduce blood loss. However, researchers found that these drugs are associated with a four-to-six-fold increase in post-operative seizures. The risk is highest for cardiac surgery patients – between three and 7.5 percent have seizures after arriving in the intensive care unit.

Seizures can cause long-term, permanent neurological problems, increase the risk of stroke and prolong a patient's recovery time. Clinicians had long been perplexed as to the cause of seizures associated with the use of TXA and EACA. Irene Lecker, a PhD candidate in Orser's laboratory, discovered that these drugs interfere with a naturally occurring anticonvulsant in the brain, glycine, and that widely used anesthetics reverse this interfering effect.

David Mazer, Professor and Vice-Chair of Research in the Department of Anesthesia at University of Toronto and co-investigator on the study, says this research will change the way these drugs are used around the world. Dr. Orser is using these findings, now published in *Journal of Clinical Investigation*, to work with the S [1]unnybrook Health Sciences Center [1]team to develop a new practice of drug administration during and after surgery.

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