

Having fully stocked cart to treat malignant hyperthermia during labor not cost-beneficial

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Maintaining a stocked cart, with a full supply of the life-saving drug dantrolene, to treat malignant hyperthermia, a rare but potentially fatal adverse reaction to general anesthesia, may not be cost-beneficial in hospital maternity units where the incidence of the reaction is low, according to a new paper published in the Online First edition of *Anesthesiology*, the peer-reviewed medical journal of the American Society of Anesthesiologists (ASA).

Instead, researchers recommend hospitals keep a small dose of dantrolene in [maternity](#) units for initial treatment, and a more centrally located stocked cart, often found in operating rooms, containing a full supply of dantrolene, other drugs and supplies be available for patients within 30 minutes of the decision to treat the reaction.

The effects of malignant [hyperthermia](#) are sudden and characterized by rapid heart rate, a dramatic spike in temperature, and muscle rigidity. A patient's susceptibility for developing the condition is inherited. Prompt availability of dantrolene is important for treating malignant hyperthermia and has resulted in lowered mortality rates. The Malignant Hyperthermia Association of the United States (MHAUS) recommends that dantrolene be available for administration within 10 minutes to combat the effects of malignant hyperthermia.

"We've moved to the point where almost all cesarean sections are done under regional anesthesia. Today it is rare for maternity units to use general anesthetics that might trigger malignant hyperthermia," said

Edward Riley, M.D., senior author and professor of anesthesiology, perioperative and pain medicine at Stanford University in California.

He noted that an institution, which delivers 6,000 babies a year and has a 30 percent cesarean delivery rate and a 5 percent [general anesthesia](#) rate, will use general anesthesia less than 100 times a year. With the expected malignant hyperthermia incidence of one case per 170,698 anesthetics, the maternity unit in that institution would expect to have one malignant hyperthermia case every 1,700 years.

"At Stanford, if a complicated delivery is done under general anesthesia, the procedure is often performed in an operating room instead of the maternity unit in order to have access to a higher level of care, which includes access to a fully stocked cart to treat potential malignant hyperthermia," Dr. Riley said.

The researchers calculated the total annual cost of placing a fully stocked malignant hyperthermia cart in a maternity unit to be \$2,016. They performed a cost-benefit analysis of maintaining a cart in or near maternity units, versus having a dantrolene treatment dose of 250 mg available, in every maternity unit in the United States.

The cost-benefit analysis showed the costs associated with maintaining the cart with a full supply of dantrolene, within 10 minutes of a maternity unit, exceeded the potential benefits. Additionally, the more cost-beneficial approach would be to keep a 250 mg dose of dantrolene on the unit for starting therapy.

"Because of the low incidence of malignant hyperthermia during labor and delivery, the costs associated with maintaining a fully stocked [malignant hyperthermia](#) cart in hospital maternity units could ultimately be diverted to resources for other initiatives that may have a larger impact on patient safety and reducing maternal morbidity or mortality,

for example, the provision of equipment to treat difficult airways," said Dr. Riley.

Provided by American Society of Anesthesiologists

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