Neuro Question of the Month: For patients undergoing endovascular thrombectomy is general anesthesia better than conscious sedation?

Endovascular thrombectomy is a common treatment for ischemic stroke, in which a clot is removed from a blood vessel in the brain. There are two types of anesthesia that can be used during this procedure: general anesthesia and conscious sedation. While both options have their advantages and disadvantages, the question remains: is one better than the other?

Several studies have investigated the effects of general anesthesia versus conscious sedation in endovascular thrombectomy, with differing answers. A systematic review and meta-analysis in 2019 demonstrated that general anesthesia resulted in significantly higher rates of functional independence than patients receiving conscious sedation for endovascular therapy (1). They found that general anesthesia had higher rates of successful recanalization at 24 hours but more episodes of intraoperative hypotension. An additional meta-analysis of four randomized control trials also had similar results, with general anesthesia having better functional outcomes at 3 months and superior recanalization rates (2).

Most recently, the largest randomized control trial to date on this topic was completed by Maurice et al. in 2022 (3). They randomized 351 patients and compared general anesthesia and sedation during endovascular thrombectomy and compared functional outcomes 3 months post procedure. They found that after 3 months the functional outcomes were equivalent in both the general anesthesia and conscious sedation group. Additionally, they found that patients that underwent general anesthesia had higher rates of successful recanalization, however, did have more episodes of intraoperative hypotension.

However, there have been other meta-analysis that have had conflicting results. A large meta-analysis in 2018 by Campbell et al. found worse functional outcomes in patients undergoing general anesthesia compared to conscious sedation (4). They also found procedures took longer under general anesthesia and the rates of successful recanalization were equivalent. Another meta-analysis completed in 2017, confirmed the findings above with patients undergoing general anesthesia having lower rates of functional outcomes post revascularization (5). They also found that patients receiving general anesthetics having higher rates of mortality and respiratory complications. Additionally, the DEFUSE study (5) found that patients that underwent thrombectomy with conscious sedation had lower stroke scores and increased functional independence at 90 days. Sedation also allows the patient to communicate with the medical team during the procedure and can make it easier to monitor the patient's neurological status.

Ultimately, there is no consensus which anesthetic technique has better outcomes for patients undergoing endovascular thrombectomy. The decision between general anesthesia and conscious sedation should be made on a case-by-case basis, taking into account the patient's individual needs and medical history.

References:

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