

## Every Minute Counts: Procedure Time, Cell Fate, and Clinical Outcome

The procedure time has been of utmost concern, both for the patients and the healthcare team (1). The surgeon's experience and surgical time procedure time, while in a close relationship, affect the quality of care; inadvertent prolonged surgery time worsens the physiologic trends in the patient's body (1).

Though several anecdotes have mentioned the application of anesthetics for centuries (2, 3), the formal invention of anesthesia by William Morton on October 16, 1846, is a great milestone, not only for anesthesiology as a newly developed science and practice but also for surgery divided into pre-anesthesia and post-anesthesia epochs (4).

Among many effects of anesthesia on time reduction and hence, the outcome of surgical patients, the direct effect of anesthesia on stress response modification is among the most prominent ones (5, 6), with many studies performed to find out the most suitable anesthesia method (7, 8).

Pediatric congenital heart surgeries are among the most complicated ones (9); meanwhile, the surgery time is more complicated in such patients; since the cardiopulmonary bypass time is added to the "routine" surgery time. However, these patients need more sophisticated perioperative care.

In this issue of the Journal, Farouk, et al., have published their results on 56 patients (29 males vs 27 females), undergoing corrective congenital cardiac surgery (10).

They have demonstrated that in the patients undergoing corrective congenital cardiac surgery, both "apoptotic and anti-apoptotic pathways" are activated; however, duration of anesthesia exposure directly affects the apoptotic and anti-apoptotic markers (10). They have mainly discussed the following factors in their research as the primary factors affecting apoptotic and anti-apoptotic pathways:

- type of the procedure
- length of anesthesia
- time of the surgery
- cardiopulmonary bypass time

- stress response trend
- postoperative inflammation status
- anesthetic drug regimens

Once, the outcome of the surgical procedures was dependent on the length of the surgery and also, the patient's self-control over the excruciating pain; otherwise, the forceful restraint of the patient by several guardians during the procedure was the determining factor! Nowadays, cellular and molecular markers are determining indices for the outcome. Considering the previous studies, the anesthetic regimen affects the cellular and molecular indices (7, 8, 11, 12). Farouk, et al., have demonstrated that not only the length of the surgery remains an important factor; but also, several other factors, including the length of anesthesia, are among the most important factors affecting the clinical outcome. About two centuries have passed and we still believe, correctly, that "*Every Minute Counts*" in the cell fate, hence the clinical outcome.

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