

Stress Response Reduction: A Prospective Strategy in Anesthesia

Since the first laparoscopic surgery on human in 1980s, the potential for manipulating the inflammatory and metabolic response to surgical trauma has been put into debate (1-5). Many physicians suggest that laparoscopic interventions are better called as “minimally invasive surgeries”, as in actuality they pose less “invasion” to the tissue, which is analogous to diminished inflammatory harmful mediators (4, 6, 7).

Surgical stress response includes endocrine, immunologic and hematologic regulations following tissue injuries made through procedures. These metabolic changes, protective in nature for the human organs, can result in deleterious effects when exaggerated (8).

Does the anesthesia techniques or drugs have the capability of altering the perioperative stress responses? Such question brings up vast fields to work on.

Cakmakaya and colleagues analyzed available data on the effect of different anesthesia techniques on recurrence of malignant tumors (9). This cochrane-based systematic review concluded that the existing data is not adequate to choose either the general anesthesia or regional techniques as the optimum method to prevent progression of malignancy. Also, a new role is introduced for the anesthesiologist in perioperative patient care.

In Addition, studies have been conducted to control the surgical stress regulations and immune functions in the postoperative period. Pain relief and its beneficial outcomes on inflammatory and oxidative stress is fairly discussed (10). Although epidural anesthesia is known as one of the efficacious techniques in this era (11), the different efficacy of variable nociceptive inhibition techniques (12) and drugs (such as volatiles, dexmedetomidine and other intravenous hypnotics) are not fully assessed yet (13, 14).

However, pain is not the only anesthesia-related

subject to be concerned about (15, 16). In the current volume of this journal, Vosoughian *et al.* have propounded the difference of spinal vs. general anesthesia on attenuating the increased cytokine levels in preeclamptic expectant mothers (17). The reported decrease in interleukins 6 and 10 demonstrates the favorable influence of spinal anesthesia in controlling the inflammatory anomalies available from before, while the net effects in other pathways such as hormonal or oxidative stress chains are yet to be examined. Moreover, other surgical procedures or pathological conditions may introduce different patterns of mediator elevation partially understood by now, which dictate further well-designed randomized trials to answer the dilemma (18).

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