

Impact of simulation practices on experienced anesthesiologists

Dear Editor,

The successful conduct of anesthesiology mandates the clinician to possess a certain degree of knowledge and skill. Simulation training provides real-time assessment of the skills and experience harnessed by a clinician. The physiology of aging is a double-edged sword which results in the expansion of experience and contraction of acquisition of new skills.

This article summarizes the physiological changes associated with aging and the advantages of simulation training among experienced aging anesthesiologists. There is very limited literature on this topic [Table 1].

Physiological changes of ageing (mostly after 65 years of age) that have an impact on anesthesiology practice are listed below:^[4]

1. Reduction in number of synapses and neurotransmitters in the central nervous system with decrease in short-term memory and attention span.
2. Presbycusis is troublesome for the anesthesiologists, in the setting of high ambient noise in modern-day operating rooms.
3. Age-related visual impairment from cataract poses challenge for the physician to acquire new clinical skills

Table 1: Summary of literature describing benefits of simulation on daily practice in experienced and intermediate, and non-experienced anesthesiologists/clinicians

Author	Main objective and study type	Findings/Remarks
1. Siu LW <i>et al.</i> ^[1] (2010)	To test the hypothesis that age affects the learning and performance of emergency percutaneous cricothyroidotomy in a high-fidelity simulated CICV scenario; Prospective controlled, single-blinded study	Both age and years from residency independently affected procedural time, checklist scores, and global rating scale scores, with younger age group having better scores and time compared to the more experienced group
2. Boet S <i>et al.</i> ^[2] (2011)	To study the six-month and one-year retention of the complex procedural skill of cricothyroidotomy in attending anesthetists using a high-fidelity-simulated CICV scenario; Single blinded randomized study	A single high-fidelity simulation cricothyroidotomy training session, including practice and debriefing, improved the procedural skills of attending anesthetists and this improvement was retained for at least one year.
3. Baxter <i>et al.</i> ^[3] (2014)	To illustrate the relevant changes and its implications associated with aging and to stimulate discussion at the individual, local, and national levels regarding appropriate changes in practice with the aim of improving patient safety; Review article	Among the various techniques suggested to improve performance like decreasing workload among aging anesthesiologists, the authors also suggested the role of simulation in assessing crisis management behavior and its use during the pre-retirement phase among aged anesthesiologists

by decreasing visual acuity.

- Change in the sleep–wake cycle with aging makes it difficult for the older clinician to perform night duties.
- Decrease in muscle strength with accompanying loss of dexterity, stamina, and arthritis pose additional problems.

Evidence is available on increased litigation issues associated with the older anesthesiologists. Tessler *et al.*^[5] reported that anesthesiologists older than 65 years had 1.5 times the risk of being found responsible for litigation when compared with their younger colleagues. These concerns raise an important question on how to decrease the same and improve patient safety.

Siu *et al.*^[1] used high-fidelity simulation in their study to demonstrate proficiency of attending anesthesiologists in a cannot-intubate, cannot-ventilate (CICV) scenario by the performance of emergency cricothyroidotomy. They demonstrated that increased operator age and years from residency were associated with decreased proficiency and increased procedure time. This study demonstrated the fact that older anesthesiologists may require simulation training programs to retain their technical skills.^[1,2] Simulations allow the clinician to reflect upon the mistakes by seeing video recordings and discussing them during the debriefing session, leading to assimilation of skills.

Simulation can also serve as means of practicing life-threatening situations that are not frequently encountered, because of which experienced anesthesiologists who also have not been accustomed to such situations can gain benefit. In addition, with improvement in medical technology and the availability of new medical equipment, learning a new set of complex procedural skills can be enhanced by simulation.

There are few limitations of simulation training. It can create a certain degree of hesitancy among the aged practitioners

while being evaluated along with their younger counterparts. Another limitation is apprehension of the instructor's judgments and simulated environment. Self-debriefing after simulation practice, with/without the instructor's help may help to overcome the above problems.^[3]

Simulation-based training can be the key to tackling the vast majority of performance-related issues faced by the aging anesthesiologist who constitute a significant portion of the workforce worldwide. The use of simulation targeting the above population solely is a promising initiative that needs further exploration.

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Conflicts of interest

There are no conflicts of interest.

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