Protocolizing Ourselves Out of Practice: Reflections on AI in Anesthesiology

Mounika Yerramshetty, Ishan Garud*

Department of Anaesthesiology, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune, Maharashtra, India.

ARTICLE INFO

Often we talk about artificial intelligence and machine learning making their way into anesthesiology; it's usually presented as some big outside revolution—like it's happening to us. But if you think about it, there's a deeper truth that's a bit uncomfortable to admit: we're not just watching this change unfold, we're the ones shaping it.

With the recent transition from peroperative to perioperative care; new opportunities are emerging, expanding our professional scope [1]. We started breaking down our skills into algorithms much before machines could even read them. The anesthetic record used to tell a very personal story—a handwritten journal full of attention, choices, and care, all written down with a sense of responsibility behind every word. Now, it's just a mechanical flow of ones and zeros, a sterile stream of data that records the numbers but loses the human touch. Automation within anesthesia typically aims to improve the stability of a controlled variable and reduce workload associated with simple repetitive tasks. This approach attempts to limit errors due to distractions or fatigue while simultaneously increasing compliance to evidence based perioperative protocols [2], and we're proud of protocols based on solid evidence that have cut down on differences between practitioners. In doing all this, we've turned the art of medicine into something machines can understand and replicate for us. But here's the twist: our constant push for perfection has actually made some parts of our job almost unnecessary. It's not that AI is coming along to replace us because we're imperfect; in fact, it's following the logical end of a system that we have built ourselves. Machine learning does well in environments with clear patterns and structured data, basically the very setup that we've worked so hard to create in operating rooms and ICUs. So instead of feeling threatened, maybe we should take a step back and realize: AI isn't taking over anesthesiology; it's growing out of it. The real question isn't whether AI has a place here or whether we have the vision to step beyond what algorithms can do. Definitely, machines will be great at modeling drug movement, predicting how patients will respond, and sticking to protocols [3]. But our role goes beyond that, doesn't it? The adaptability to uncertainty, contextual ethics, and the unquantifiable elements of patient care still require datafication.

If we reduce our practice to what can be protocolized, we may find ourselves competing in a race we cannot win. However, if we reclaim anesthesiology as both science and art and as relational, creative, and adaptive, we can chart a future where AI serves as a powerful extension of human expertise, not its replacement.

The rise of AI and ML in anesthesia is not an accident. It is a mirror, and what we see in it will depend entirely on where we choose to look. In the end, anesthesia is not merely the management of numbers or protocols—it is the quiet forging of trust in the space between uncertainty and hope, where only a human presence can truly stand.

References

[1]   Buhre W, Maas L. Broadening the scope and rising to the occasion, an opportunity for anaesthesiologists to take the lead in healthcare quality & patient safety (again). Curr Opin Anaesthesiol. 2024; 37(2):150-154.

[2]   Coeckelenbergh S, Boelefahr S, Alexander B, Perrin L, Rinehart J, Joosten A, Barvais L. Closed-loop anesthesia: foundations and applications in contemporary perioperative medicine. J Clin Monit Comput. 2024; 38(2):487-504.

[3]   Kandhare P, Kurlekar M, Deshpande T, Pawar A. A Review on Revolutionizing Healthcare Technologies with AI and ML Applications in Pharmaceutical Sciences. Drugs Drug Candidates. 2025; 4(1):9.