

ANAESTHESIA IN 2050 -

HOW DO I VISUALISE

Change has been the only universal truth of existence. The prediction of whether a speeding asteroid would collide a planet to death or bring it the sprouts of new life can be a fascinating discourse. Anaesthesia has witnessed a rather adventurous journey beginning from the herbal cocktail era to an ether reigned century and finally stepped into the present day newer agents anaesthetic practice. As my perspective reveals, the future at the end of three decades, by the year 2050, might open revolutionary realms for anaesthesia but could also probably pave the way to extinction of anaesthesiologists.

It's an early winter morning of 2050, when the entire city is sleeping under the cold misty blanket. However, Dr. Priyanka, the anaesthetist on emergency call, is finishing up with administration of respirocyte in that young kid on bed number three of the critical care unit. Poor child got caught in an electric fire at his home and presented two days back with severe Carbon-Monoxide (CO) poisoning. It appeared to her like the end of a rather active day. Just when she caught a moment to grab some coffee, an announcement echoed into the emergency block. A hyperloop pod had met with an accident and 12 patients were being transported to her facility within few minutes. This resonated as some quick action on her part. Anticipating surgical and critical care requirements in multiple of those, she ran a plan for her preparation. Thanks to the quick scout disc scan, a little disc kept between the finger and thumb of a person, findings of the whole-body scan of all the patients beeped into her computer, just seconds later. The assisting robot loudly briefed her the cases, informing that three of the patients were being transferred to the Operating Room(OR) and another two to the critical care unit.

She began to activate the Automated Critical Care System(ACCS) and the Automated Anaesthesia Delivery System(AADS), feeding in the recorded and target clinical parameters into the computer. Two of the operative patients were to undergo Robotic-assisted exploratory laparotomy while another required surgery for a compound fracture femur. The basic plan was made- general anaesthesia for the prior two and regional approach for the latter. She gave a careful look to her advanced OR cart ensuring she had all she might need. Apart from the components she had been keeping since her decades old practice, her now fancied nanorobots-vasculoids and clottocytes (the advanced substitutes of whole blood and platetlets), the real heroes for hemorrhagic shock scenarios were there too. The PER (pi-electron-rich) nanoparticle was also gleaming at the corner of the tray, assuring her, it would handle an inadvertent bupivacaine toxicity. The patients arrived soon thereafter. Robots had been already programmed to establish venous access, perform endotracheal intubations and assist in the delivery of regional anaesthesia.

Once patients were under anaesthesia, the closed-loop system took over. She let out a little sigh of relief as now she just needed to evaluate and monitor. The computer would detect any changes

in parameters, based on the preset data; and administer the preloaded medication in small quantities until the desired response is achieved. The vocal alarms will notify her in case of any critical event. Finally, settling down in the chair, she could not help but ponder how efficiently and conveniently she was able to handle all these patients.

Had it been the days of her post-graduation, nearly 3 decades back, such a mass casualty would have meant a loud cry of help. Several anaesthesiologists and other team members would have been pacing around, managing the preparation, delivery, and maintenance of anaesthesia. The residents would have been sick worried arranging blood products, pushing intravenous fluids and keeping a strict record of all the critical steps throughout the surgery. Those were the days when they were taught to keep their eyes and ears on the monitors at all times, so as to detect the change in parameters and promptly spring up for administering the desired medication. She remembered how their weary minds had committed drastic mistakes by the end of some long, hectic duties. The several times, a high spinal had made her adrenaline run rampant. The number of times, she had witnessed patients succumbing to their critical situations, due to the then unavoidable delay in management.

Maybe, it was just this thought of the past, that she started recalling an interesting talk with one of her friend and fellow resident- Ambo. They were discussing the revolutionary technological innovations and their probable impact on the future of anaesthesia. She was intrigued by the idea of neuroelectronic interfacing, proposed to enable nanochips linking to the human nervous system. The concept of a system designed to detect the hypnotic state of patient continuously to deliver the most appropriate dose of anaesthetic as and when required was fascinating. A little smile danced on her lips when she recalled her words to him- "An autopilot never replaced the airline pilot, it just made the work more streamlined". Even today, an ongoing research to have educator chip implants, aimed at giving information of practically every clinical situation to a medical professional, doesn't cease to intrigue her. While she believed, this would be a step ahead for their field, Ambo was supporting his idea of these innovations bringing anaesthesiologists, a step further in losing their clinical skills and to a verge of functional irrelevance. He had always been a strongly opinionated intellectual. Now that she thought of it, it was hard to remember the last time, when she had utilized her clinical skills to provide a complete peri-operative care to any patient. She recalled him saying that the ardent desire of humans to create something outperforming them in all manners, was pretty foolish as it would mean eradicating the need of your own existence.

Was he correct in his context? Did he see something that was concealed from the plain sight of others? Or were those rest too blinded by the dream of building convenient and efficient health services, losing track of many fellows left somewhere in that trail of success? She was here today, maybe as she accepted to expand her role from an anaesthesia provider to various other disciplines of peri-operative medicine, palliative medicine, critical care and research. She has however not heard of the whereabouts of many of her friends from college. She wondered what became of them. The string of thoughts was jolted by her colleague who had come to relieve her

of duty. She had a big project upcoming and in a few hours she should be ready with her proposal for the tackling of possible bioterrorism threat hovering over her city, the city that had just started to catch up on this another lazy morning. Still caught in the dilemma of whether this future she so longed for, had brought her community to a new zenith or pushed it deeper towards nadir, she grabbed her oxygen mask and quietly stepped out of the hospital into the unwelcoming and inhospitable city air.