



The Role of Brain Computer Interface in Regional Anesthesia

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One of the emerging methods that has generated significant optimism for problem-solving is the use of brain-computer interfaces (BCIs), which facilitate interaction between the computer and the brain to address underlying issues (1, 2). Over the decades, anesthesiologists have sought less risky and less invasive methods for anesthesia planning; BCIs may offer an alternative to achieve this objective. For instance, BCIs could be utilized to selectively block only the sensory and motor nerve pathways related to the lower or upper limb during surgery. This approach could lead to a computer-based regional anesthesia method. Thus, without the use of medication or the need for needles or other invasive techniques, the patient's selected region could be anesthetized at the precise and specified time for the operation and returned to a normal state with a single click. To achieve this, the anatomical pathways from the cortex to the thalamus and then to the anterior spinal tracts (i.e., the motor pathway) should be traced (3). Simultaneously, the return route (i.e., the sensory pathway) should be controlled using a similar approach (3), both utilizing BCIs. Although this concept is still in its infancy, it could be considered alongside novel technologies used for treating neurological disorders with BCIs (4).

Footnotes

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