How Anesthesia Affects Your Brain And Body

(0:00 - 0:33)

When you go to sleep, if I pinched you, you'd be up. If I shook you, you'd be up, right? But under anaesthesia, I'm going to pinch you and do a full operation, and you're not up. So it's really further on the spectrum of unconsciousness.

Ten, nine, eight, seven. When you wake up after being put under with general anaesthesia, you barely feel like any time has passed. You could have been out for an hour or a day, and you wouldn't know the difference.

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When you go to a natural sleep, people call your name, your alarm goes off, you wake up, right? This is not what is going to happen during general anaesthesia. You're going to be unconscious. You're closer to being in a coma than being asleep.

Anaesthesia was first used during surgery in 1846. The drug provided at that time was ether. Now, anesthesiologists more commonly use a combination of drugs, like propofol and fentanyl, which interrupt neural pathways so you don't feel pain and you don't remember the surgery.

Three things that you need for general anaesthetic are you need amnesia so that they don't remember, analgesia so they have pain relief, and then operating conditions for the surgeon. Some surgeries you need the patient to be very relaxed, so you would use a muscle relaxant. Other surgeries, the patient just needs to be asleep and anaesthetized, but they don't need relaxation.

So how they do that varies upon the different medications that you're using. Some will depress excitatory neurones, and some will enhance inhibitory neurones. Excitatory neurones, for example, get excited and send signals to other neurones to fire.

Depressing them means less signals telling your brain you're in pain. Inhibitory neurones do the opposite. They make it harder for neurones to generate these electrical signals.

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In either case, this means fewer active neurones overall, which is important because when your body is being poked and prodded, neurones would typically fire to tell your brain you're in pain. If those neurones aren't firing, your brain doesn't know that your body is, well, being cut open. Basically, it interrupts the pathways and the communication between your neural networks.

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We're aiming for them to be not in pain by looking at their vital signs, their heart rate, their

blood pressure. Then we want to make sure that they're unconscious. Without anaesthesia, many important surgeries wouldn't be possible because they'd be way too traumatic.

Surgery didn't move forward, really, until anaesthesia moved forward. You know, you watch those old movies, they give you a swig of alcohol, they put a tourniquet, and they hack your leg off. People don't do well with that, right? If you had a bad heart, that would be the end of that.

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After the procedure is complete, the doctors stop administering the meds, and the most powerful effects of the drugs wear off. But even though you're conscious again, you might continue to experience some of the drug's side effects. This is the bottom one.

This is your chin. It feels like a trampoline. It feels like a trampoline? Uh-huh.