

Under the Knife Under Hypnosis

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As the surgeon's knife cut into her chest, 46-year-old Pippa Plaisted should have been in agony. The 45-minute breast cancer operation she was undergoing at the Lister Hospital in London would normally have needed a general anesthetic. But Plaisted had not been anaesthetized, nor given painkilling drugs of any sort. Instead, hypnotherapist Charles Montigue stood at the operating table, his thumb resting on Plaisted's forehead, monitoring the hypnotic trance he had put her in minutes before the operation began. Eyes closed but awake, Plaisted could hear the surgeon calmly telling her, at each stage of the operation, what was going to happen next. Plaisted had already used hypnotherapy to help overcome her fear of operations but had never tried it during surgery. It seemed a daring thing to do, but she was desperate to avoid conventional anesthetics. She had had a series of operations, and after each one the drugs had left her feeling dizzy for months. Astonishingly, the hypnosis succeeded in making her operation entirely pain-free. "The surgeon was cutting and sewing inside me, but I could not feel any sensation at all," Plaisted recalls. "After the operation I felt tired, but there was no nausea or wooziness. I had a clear head and felt totally normal."



Medical hypnotherapist Stephen Chan MIAH demonstrates hypnosis for pain control and the power of hypno-anesthesia at the 21st Annual IAH Conference, May 2006

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For most people the idea of undergoing major surgery while conscious seems unthinkable, but Plaisted's use of hypnosis is no one-off. In Liege Hospital, Belgium,

anesthetists routinely use a procedure that they call "hypnosedation".

They have found that when combined with local anesthetic and much-reduced amounts of other analgesic drugs, medical hypnosis is an effective alternative to general anesthesia. So far, the Liege team has used this technique in over 4800 major and minor operations. Now other hospital departments are beginning to follow suit. Given the advances in pharmacological anesthetics in recent years, it seems odd that anesthetists should even think of using hypnosis.

During the 19th century, hypnosis was reportedly used as an anesthetic in several hundred operations. However, with the discovery of chemical anesthetics such as nitrous oxide and chloroform, the practice fell into disuse. Still many anesthetists harbored nagging doubts about the wisdom of putting people into a pharmacological coma. One of them was Marie-Elisabeth Faymonville, who now leads the Liege team. She noticed that patients often reported difficulty recovering, and when she had an operation under a general, she felt that her cognition and memory were affected. She started looking for an alternative and in 1992 began testing hypnosedation.

Faymonville's team still uses general anesthesia when absolutely necessary, such as in stomach, chest or orthopedic surgery where it is impossible to numb all the nerves with a local. She remains unconvinced, though, of the safety of general anesthesia. "As anesthesiologists, we are only really beginning to ask ourselves if it is really as harmless as we say it is," she says. "We know nothing about the long-term repercussions of these drugs on the brain." "The surgeon was cutting and sewing inside me, but I could not feel any sensation at all"

So far, studies into the long-term effects of general anesthesia have been carried out mostly in animals or cell culture, making it difficult to draw firm conclusions about the effects on human health. "There are really only threads of evidence at this time," says anesthetist Steffen Meiler of the Medical College of Georgia in Augusta. "We have a vast clinical record of the overall safety of general anesthesia.

But we have these intriguing strands of evidence." Several studies, for example, have shown that people who have had general anesthetic are more likely to develop neurodegenerative diseases such as Alzheimer's and Parkinson's later in life.

Last year, Roderic Eckenhoff of the University of Pennsylvania in Philadelphia investigated whether the inhaled volatile anesthetics, which make up the majority of the estimated 100 million general anesthetics given worldwide each year, might be behind this association. He found that in cultured neurons even brief exposure to the anesthetics halothane and isoflurane was enough to cause abnormal clumping of proteins.

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Eckenhoff suggests this mechanism could accelerate the development of neurodegenerative diseases (*Anaesthesiology*, Vol. 101, p 703). Other potentially harmful

effects relate to the way anesthetics interact with the immune system. "An increasing body of evidence strongly suggests that volatile anesthetics suppress adaptive immunity, an effect that can last for many days after surgery," Meiler says. Several studies have suggested that inhalable anesthetics are capable of inducing programmed cell death in white blood cells. Meiler believes these findings certainly merit larger, clinical studies.

"We are a long way away from saying that volatile anesthetics are bad for people," he says. "But we cannot ignore these data." David Hatch, professional standards adviser at the Royal College of Anesthetists in London, admits that too little is known about both the short and long-term health effects of anesthetics. He says that although the overall risk of dying from general anesthesia is about 1 in 200,000, the risk is higher for certain groups such as smokers and people with heart conditions or diabetes.

"I think most anesthetists recognize that there is a place for complementary therapies - increasingly so," he says. "I think hypnosis has a very valuable part to play. Most anesthetists would not be opposed, and obviously hypnosis is very safe. The fewer drugs you can use, the better." Comfortably numb General anesthetics are often used simply because the patient would prefer to be unconscious during the operation. Anesthesiologist Lee Fleisher of the University of Pennsylvania estimates that about a third of operations done under general anesthesia could actually be done under local.

Meanwhile, the Liege team is discovering that hypnosedation has some remarkable benefits. For a start, patients bleed less. This makes surgery easier to perform, particularly nose or breast operations, where incisions often lead to copious bleeding. One reason for this reduced bleeding, Faymonville says, is that anesthetic drugs inhibit the natural tendency for blood vessels to constrict in reaction to an incision. Patients under general anesthesia also have to be ventilated with a respirator. "This creates a positive pressure in the chest, which increases bleeding," Faymonville says. "In hypnosedation patients breathe spontaneously."

Because hypnotized patients are conscious throughout the operation they can even cooperate with the surgeon. Dirk Hermes, an oral and maxillofacial surgeon at University Hospital Lübeck in Germany, is taking advantage of this. He often performs a surgical procedure to correct eyelids that are drooping due to old age or facial trauma. This sight-saving operation is tricky. The adjustment has to be perfect: too little and the patient cannot close their eyes properly; too much and the eyes cannot be fully opened.

This is where it is helpful to have conscious patients. "It is a big, big benefit," says Hermes. Hypnosedation also seems to improve recovery time. In 2000, Faymonville's team compared 20 patients undergoing thyroid surgery under hypnosedation with 20 patients undergoing the same surgery under general anesthesia. Whereas the anaesthetized patients spent an average of 36 days recovering from the operation, those that had been hypnosedated returned to work after an average of only 10 days. The main difference, the team found, was a reduced level of inflammation in the hypnosedated group (*Annales de Chirurgie*, Vol. 125, p 539).

Hypnotherapists recognize four stages of hypnotic trance: hypnoid, light, medium and deep. For most operations, hypnoid or light trance are ideal, says Hermes. In these states the patient is relaxed, has little inclination to speak or move, and has a slower heartbeat and breathing rate. Deeper states take longer to induce and make the patient too distanced to be able to co-operate. However, in cases like Plaisted's where not even local anesthetic is used, the patient needs to be in a medium or deep trance to blot out the pain.

To get patients into trance, Hermes first asks them to close their eyes and think of a situation where they feel secure and happy. "Most patients choose a holiday or a day at the beach," he says. Gradually slowing down his voice, Hermes gets patients to describe the sights, sounds, feel, smells and tastes of their imagined scenario, and then he repeats back to them what they have said. After several minutes of this, over 96 per cent of patients are able to arrive at a hypnoid or light trance. Hermes has found that even when patients feel pain, it can be perceived benignly. He once performed major facial surgery on a patient who requested the smallest possible dose of local anesthetic.

When the operation was over, Hermes asked the patient whether he had felt any discomfort. "I didn't really have pain," the patient replied. "It was just that I lay in the sun too long and I got a terrible sunburn." Neuroscientists are only just beginning to understand how hypnosis can reduce sensations of pain. In November, researchers at the University of Iowa in Iowa City published a study that used functional magnetic resonance imaging (fMRI) to compare the brain activity of hypnotized and non-hypnotized volunteers when they were exposed to painful heat. The fMRI images showed that brain activity in the two groups differed significantly. The response of their subcortical neural network, where pain signals start, was unaffected. However, there were remarkable differences in the higher parts of the pain network. Activity in the primary sensory cortex, the area responsible for feeling pain, was dampened down.

Meanwhile, there was increased activity in the anterior cingulate cortex and basal ganglia. Sebastian Schulz-Stubner, who led the study, believes that this increased activity in the anterior cingulate cortex and basal ganglia may be suppressing activity in the primary sensory cortex (*Regional Anesthesia and Pain Medicine*, Vol. 29, p 549). Another fMRI experiment has shown that the hypnotized mind is consciously able to manipulate pain perception. In a study to be published later this year, a team led by Stuart Derbyshire of the University of Pittsburgh in Pennsylvania hypnotized patients with fibromyalgia, a rheumatic condition that causes chronic pain in the extremities. Then he asked the patients to imagine a dial representing their pain. When they turned this imaginary dial down, the patient reported feeling less pain, and fMRI images confirmed that there was less activity in the brain areas responsible for pain.

"There was a direct correlation between the subjective pain and the amount of activity in those pain areas," says team member David Oakley of University College London. Whatever the mechanisms behind it, could hypnosis realistically replace a significant number of the 100 million general anesthetics given worldwide each year? Sceptics point out that only a small proportion of people are easily hypnotized, making it largely impractical. According to David Rogerson, an anesthetist and hypnotherapist at Derby

City General Hospital in the UK, only 10 per cent of people are highly susceptible to hypnosis.

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"Those are the kind of people that a stage hypnotist will pick out of the audience," he says. The other 90 per cent, Rogerson says, will not be able to become sufficiently hypnotized to withstand the pain of surgery. Not so, says Shulz-Stubner. He reckons that in an operating theatre, as many as 80 per cent of people can achieve the right level of hypnosis. Faymonville's results tell an even bigger success story: hypnosis has been successful in all but six of her patients. "The hypnotic state is a normal state that everyone can access if they want to," Faymonville says. Another potential barrier to practicality is the amount of practice patients need before an operation. Many practitioners feel that dry runs are essential: Shulz-Stubner says that the minimum requirement is a practice session the night before. But Hatch points out that if pre-hypnosis is necessary, it would put a strain on hospital workloads and in many cases make it unfeasibly expensive.

Again, however, Faymonville's experience suggests otherwise. Her team does not perform dry runs. They explain the technique to their patients a couple of weeks before surgery, but only hypnosedeate them for the first time 10 minutes before surgery. And in any case, as both Faymonville and Hermes have found, the extra time required to explain or administer hypnosis is more than made up by faster recovery periods.

Casualties who need surgery to close their wounds often have to be treated under local anesthetic as they have eaten too recently to have a general, which can only be done on an empty stomach. "If the patient is very stressed and frightened, then I do hypnosis," says Hermes. But isn't it very difficult to hypnotise someone who is in that state? "Not at all," Hermes says.

"The more stressed people are, the more thankful they are if you help them to relax and calm down." Yet for all the apparent benefits, the medical establishment is still not taking hypnosis seriously. "It is sad that our medical colleagues still manage to ignore this, because it really helps a lot of patients," says Hermes.

"Surgeons say that there are not enough valid clinical studies. Unfortunately, most studies are published in journals that an ordinary surgeon would not read." Hermes himself has had difficulty getting reports published in widely read surgical journals, and his previous boss was opposed to him introducing "funfair methods" into the hospital. Patients, however, are much more open to the idea.

"The acceptance of hypnosis in surgery is very high - far higher than you would expect," says Hermes. "To the public, hypnosis still has a very bad image. If you ask people in the street they will say it is something for TV shows. But I just tell my patients, 'Hypnosis is something serious and medical, it doesn't have anything to do with TV shows, and it works'."