RISKS ASSOCIATED WITH YOUR ANAESTHETIC

Nerve damage associated with general anaesthesia or peripheral nerve block

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What comprises our nervous system?

Our nervous system consists of
- The Brain- the central processor of the system
- The Spinal Cord- carries signals from the brain to muscles and other organs. It also conveys sense organ impulses back to the brain. These allow you to feel touch, pain, position and hot or cold.
- The peripheral nervous system- includes 3 types of nerves.
  A) Sensory- that bring information about touch, pain temperature etc.
  B) Motor- that control muscle activity and
  C) Mixed- these are partly motor and partly sensory

What symptoms can be caused by nerve damage and how long do they last?

- Damage to sensory nerves can cause numbness, ‘pins & needles’ or pain. The pain may be a continuous ache or a sharp shooting pain. You may also get inappropriate warm or cold sensations. Damage to motor nerves leads to weakness or paralysis of the muscles in that area. These effects may last for variable time periods. Most symptoms resolve within 3 months but full recovery may take up to a year or longer. Rarely (less than 1 in 10,000 general anaesthetics) nerve damage is permanent.
- Damage to the spinal cord is rare occurring in less than 1 in 50,000 anaesthetics. It affects both muscle power and sensations, depending on the location of the injury. Unfortunately this sort of damage is usually very painful, extensive and permanent. Bowel and bladder control may also be affected.
- Brain damage is very rare and mostly irreversible.
What are the most common nerve injuries?

The risk of nerve damage lasting more than 3 months is estimated at less than 1 in 2000 patients having general anaesthetic. However with a peripheral nerve block the risk is around 3%. Fortunately the vast majority of nerve damages are temporary. The ulnar nerve is the commonest reported nerve injury. It can get compressed at the elbow, where it is very close to the skin. This can cause weakness of the hand muscles and/or numbness of the 4th and 5th fingers. The common peroneal nerve at the knee is the other commonly injured nerve. This can result in inability to lift the foot off the ground and/or numbness in the foot.

What is done to prevent peripheral nerve damage?

Your anaesthetist, surgeon and theatre staff shares the responsibility of minimizing nerve injury by carefully padding all vulnerable areas, appropriate positioning to avoid nerve compressions, avoiding prolonged bed rest and by raising awareness of the possibility of nerve damage during surgery.

What can be done if there is nerve damage?

A neurologist may assess the nerve damage using techniques like Magnetic Resonance Imaging (MRI), Computerised Tomography (CT scan) and nerve conduction studies. Suggested treatment consists of physiotherapy, pain reliever drugs or small operations to repair the nerve.

How does peripheral nerve damage happen?

There are several ways a nerve can be damaged during an operation.

- Compression and stretching- this can damage nerves when you are placed in certain positions under general anaesthetic to allow surgery to be done, e.g. lying on your front for back surgery. Tourniquets used to reduce bleeding during surgery can also cause nerve damage. Therefore the pressure of the tourniquet and the time it is used are carefully monitored. Very rarely, your tongue nerves might be damaged by the equipment used to secure a clear airway or by surgical instruments.
- Surgical damage- the surgeon may cut a nerve or damage it by use of instruments
- Inadequate blood supply- each nerve has its own blood supply that provides food and oxygen to it. This can be compromised due to pressure or stretching. It is more likely in people who already have narrowed blood vessels e.g. coronary heart disease and diabetes.
- Insertion of cannulas (drip) and Peripheral nerve blocks can cause damage to nerves by direct injury, haematoma (blood clot), inadequate
blood supply and infection. If you take blood-thinning medicines such as warfarin or clopidogrel, you are more likely to get a haematoma. Your anaesthetist will take this into account before offering you a nerve block.

- Catheters used for prolonged nerve blocks may get infected and lead to nerve damage.
- Swelling of the operative site, especially in limbs, can also damage nerves.
- Unknown cause- In the majority of cases the mechanism of injury is unclear.

What increases the risk of nerve compression and consequent damage?

- Certain positions required for surgery e.g. lying on your back with legs raised and spread out (genital surgery), lying on your front (back surgery), lying on your side (kidney surgery)
- Certain operations e.g. long operations on breasts, neck and brain. Operations needing tourniquets to reduce bleeding e.g. knee surgery
- Previous diseases like diabetes, osteoarthritis and atherosclerosis
- Being male and increasing age
- Being overweight or very thin

What causes spinal cord damage?

The main cause associated with general anaesthetic is inadequate blood supply to the spinal cord. This can happen due to persistent low blood pressure, a clot blocking the blood vessels or compression of blood vessels leading to oxygen starvation of the spinal cord.

This leaflet can be made available in alternative languages/formats on request.

For further advice please telephone

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