

1. Diagnostic stellate, thoracic sympathetic and splanchnic nerve blocks

These are used to attempt to treat a proportion of head, neck, upper limb, chest and upper abdominal pain and they are usually temporary in effect. One may experience an increase in pain after such injections, usually only in the short term, although occasionally longer. Other symptoms that may be experienced include changes in voice, facial flushing, swallowing difficulties and there is a 1% to 3% chance of a pneumothorax, which may require drainage of the excess air by the use of an intercostal drain in a few cases. These procedures are usually a prelude to more therapeutic versions of the same injections.

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2. Therapeutic stellate, thoracic sympathetic and splanchnic nerve blocks

These are used for pains of the upper limbs, chest and upper abdomen. The procedure is said to help approximately 50% of those who respond to temporary procedures of the same nerves. There may be up to a 5% chance of being worse off after the procedure. In any case there is a 3 to 4 month period where the pain may be increased rather than decreased. With lesions of the upper thoracic chain there may be effects on the head and neck such as blurred vision, swallowing difficulties, voice changes and an increase in pain in the head, neck or chest. There is approximately a 3% incidence of a pneumothorax, which may in a few cases require drainage by an intercostal drain. Long-term results of these procedures are not known and there may be premature failure due to nerve re-growth.

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3. Diagnostic lumbar sympathetic blocks

These blocks are used for sympathetic associated pain from the abdomen, back, pelvic region or legs. Local anaesthetic and, in some cases, steroid is used for the procedure, which may cause headaches and temporary increase in weight post procedure. There may be an increase in pain in the first few days (occasionally longer), often accompanied by groin soreness, hot legs and temporary alteration of bladder function. These symptoms only go on for 2 or 3 days, very occasionally up to 2 weeks or longer. The relief from such a procedure tends to last only weeks and they may be used as a prelude to more definitive sympathetic denervation by the use of phenol and radiofrequency.

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4. Therapeutic sympathetic blocks

This procedure is used to block the sympathetic chain permanently or semi-permanently with the use of phenol and radiofrequency. Usually a test block of the sympathetic chain with local anaesthetic and steroid precedes it. The chances of being better off after this procedure are approximately 50% with a chance of being worse off about 5%. Very long-term data is not available. Certainly for the first 3 months there can be an increase in pain, groin soreness, hot swollen legs, which may include cracking of the skin of the foot. Sometimes temporary irritability of bladder or bowel may occur, although these tend to be uncommon side effects. There also may be increased back pain. Local anaesthetic and steroid is used to cover some of the soreness associated with the procedure usually only lasting a few days. There may be a temporary weight gain, which may persist for a few weeks. If the procedure is performed bilaterally there is a 3% chance of impotence. The effect on sexual function in women is not known.

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5. Diagnostic facet joint blocks and SI Joint blocks

Facet joint blocks and SI Joint blocks are used to test whether there is pain coming from the joints of the spine. They are performed with local anaesthetic and steroid. Normally there is increased pain for 2 or 3 days (occasionally longer) followed by possible relief. Occasionally the aggravation in pain can go on for longer. The local anaesthetic and steroid used may cause headaches for a few days and a temporary increase in weight. These facet joint blocks tend not to cause long-term relief of symptoms but can be helpful to decide whether to go on to facet joint denervation, a procedure that may carry a better long-term prognosis.

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6. Spinal facet and SI joint denervation

In the longer term this procedure works in 50% of patients who continue to experience more than 50% relief. Initial response rates are 70%. I would expect the period of pain relief to last at least three to four years in younger people and in older patients it may last longer. However, early re-growth of nerves is possible and sometimes re-denervation may be necessary after six months. For approximately 3 months after the procedure the patient may experience increased pain. During this time extra analgesia may be required and I normally recommend physiotherapy. The chances of being worse

off in the longer-term are less than 1%. Patients may experience long-term numbness and occasionally soreness of the back, which is usually of no consequence. Local anaesthetic and steroids are used to help cover post-operative soreness and these may cause headaches for a few days, occasionally associated with temporary weight gain.

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7. Discography

Approximately 40% of mechanical back pains have a contribution coming from the intervertebral discs. Provocation in intervertebral discography is used to identify such sensitive segments and occasionally placement of local anaesthetic and steroid within the disc can give usually short-term relief. There is usually an increase in pain after such procedures and because one is going quite close to the spinal roots in getting to these discs, pains down the legs may occur. Again these tend only to happen at the time of the procedure and very occasionally for a few days afterwards. Long-term damage to the spinal nerves is only a small risk and has been described. Infection of the disc may also occur with the injection but this is also very uncommon.

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8. Disc denervation

This procedure is performed by using electrodes in the middle of the disc and passing a current through it. The current causes heating up of the disc material to anywhere between 70° and 80°, thereby cauterising some of the nerves supplying the disc. As far as I am aware the procedure has very few side effects apart from an increase in pain for anywhere up to 3 to 5 months and the rare possibility of an infection of the disc, called discitis. In the small number of studies performed on this technique, the chances of being better off are about 50% at 2 years. In the short-term increased pain or odd symptoms in the back and leg may be a feature, but are relatively uncommon in the longer-term.

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9. Trigger point injections

Injections of trigger points with local anaesthetic and steroid or other agents may help reduce pain coming from focused areas of the body, particularly if associated with irritated nerves, muscles and ligaments. Injections can calm inflamed tissues and nerves down). They are not permanent and may in fact cause an increase in pain for a few days before relief, if any, is noticed. Occasionally a course of injections helps to reduce the level of symptoms although very rarely do they abolish symptoms altogether. Occasionally injections of local anaesthetic and steroid into the skin can cause changes to the skin itself, cause rarely cause fat atrophy. One may also be allergic to drugs used in the injections. A few days after the procedure one may suffer from headaches and the steroids can cause temporary increase in weight. Chances of infection are about 1:1,000 or less and obviously there is a risk the needles may damage structures in the area of injection, although this is rare in the hands of experience operators.

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10. Sacral root blocks, dorsal root ganglion blocks and epidurals

These procedures are performed to help reduce pain, particularly where there is a strong neuropathic element. Usually a mixture of local anaesthetic and steroid is injected although other agents may occasionally be added. Steroids have been used for this type of procedure for decades, although they are not licensed for it. Other drugs that have been injected epidurally include Clonidine and Ketamine, and if these are used the purpose will be explained to you. The chances of any major adverse events after such procedures are in the order of 1 in ½ million. The risk of long lasting minor neurological event is 1 in 5,000 and the risk of infection is 1 in 2,000. The risk of minor events such as significant headaches due to a spinal tap is in the order of 1% or less. Normally after such procedures there may be some odd feelings in the affected part followed by increase in pain for a day or two before hopefully some useful effect. Although these procedures do not tend to give long-term relief some patients do show quite dramatic responses. In some studies use of such procedures reduces the subsequent requirement for any surgical operations on the spine.

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11. Ligamentous/Tendon injections (Prolotherapy) blocks

Positive identification that a particular ligament is causing pain may be identified with local anaesthetic and steroid. These may reduce the sensitivity of the nerves in the ligament thereby bringing about short or long-term pain relief. If the injection does work but wears off, phenol possibly mixed with local anaesthetic and steroid and occasionally glycerine or dextrose may also be injected. This has been used for many years as a treatment for ligamentous pain. The long-term effects of these agents are not known, but in the short-term there may be an increase in pain for up to 4 months. Physiotherapy is an important part of treatment. Complications including increased pain and odd pains in the legs and back are extremely uncommon and probably occur in 0.1% cases or less.

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12. Guanethidine Blocks

Guanethidine Bier Blocks are performed in an attempt to reduce the sympathetic element of pains. The procedure is performed with a cuff around the affected part and the drugs injected intravenously. It may consist of Guanethidine, an anti-inflammatory, steroid, local anaesthetic and saline. A tourniquet is required to obstruct blood flow during the procedure but the cuff stays up for approximately 20 minutes to ½ an hour. The procedure itself can cause pain because of the cuff pressure. There is often a worsening of pain on injection and for usually only a few days afterwards, although longer periods of pain have been reported. If the procedure is helpful it is often repeated up to 3 times. Some patients notice a marked decrease in pain into the long-term with a course of blocks. If the first block shows no effect there is probably no point repeating it. Patients who suffer from thromboembolic disease should not undergo this procedure. For a few days after the procedure the patient may feel light headed or generally unwell due to the drugs administered. Neurological problems due to the tourniquet itself are extremely infrequent as the pressures and times involved are relatively short.

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13. Saphenopalatine and trigeminal Blocks

These injections are used for treatments of facial pain. They are done under x-ray control with some sedation. Temporary versions are performed with the use of local anaesthetic and steroid and these drugs themselves may have side effects, including temporary weight gain and headaches. The side effects of the procedures include increases in pain, numbness in the area of the face, bruising, a nosebleed and numbness of the palate (later complications of these diagnostic procedures are rare). Pulsed radiofrequency may be used to try to extend the benefit of these diagnostic injections but tends to wear off after a period of time. Permanent versions of the injections can be performed using conventional radiofrequency. If conventional radiofrequency procedures are used then long-term numbness may occur which may include numbness of the face, eye or soft palate. With all such injections there is always a small chance of the pain being worse off afterwards.

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14. Injection into joints

Injection into the joints is done for both diagnostic and therapeutic purposes. Often a mixture of local anaesthetic and steroid is used. Normally after injection there are a few days of increased pain before relief, if any, is obtained. With such injections one hopes that there will be a relief of pain but in the short term there may be an increase in pain, possibility of bruising and infection. There also may be bleeding into the joint which may require drainage, there is some evidence that repeated steroid injections may cause increased degeneration within the joint and are not usually advised unless there are no other options.

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15. The use of Steroids in injections

Steroids have been used for epidurals, nerve root blocks and facet joint injections as well as other procedures for very many years. They are not licensed for this but it has been accepted as part of the clinical practice, amongst Pain Management Consultants, Rheumatologists, Orthopaedic Surgeons and Neurosurgeons. Steroids work by reducing inflammation either in or around joints, or around nerves and can produce a marked relief of symptoms. Although the effects of steroids tend not to last in the long-term, some studies have shown that the use of such drugs does tend to reduce the requirements for specific procedures on the spine. Whilst long-term use of steroids are associated with side effects such as weight gain, hair loss, loss of bone density, headaches, menstrual irregularity, changes in mood and rarely avascular necrosis of the hip, in the Pain Clinic setting such side effects are less frequently seen. This is because the steroids have been given as a single dose and occasionally as a few doses. To give you an idea of the sort of frequency of side effects seen with steroids in clinical pain practice, I estimate I see after injection of steroids, temporary increased headaches in about 30% of patients, weight gain, inflammation of spots or other skin reactions in about 5-10% of patients and temporary hair loss, temporary menstrual irregularity and mood changes in less than 5% of patients.

16. The use of Antidepressants in the Pain Clinic

The pain relieving effects of anti-depressants have been known for sometime. The dose required to achieve this is often much lower than they are required for the treatment of depression. Drugs that seem to work particularly well in pain include the Tricyclic anti-depressants such as Amitriptyline, Imipramine or Dothiepin, more recent drugs such as Venlafaxine also seem to have a useful analgesic effect. The usual side effect of these drugs is to cause dry mouth, blurred vision and sedation. However, with continued use these side effects often diminish with time. Newer anti-depressants known as SSRI's,

such as Prozac, Paroxetine or Citalopram tend to have fewer pain relief actions but are better tolerated, and one can often combine these newer generation anti-depressant drugs with the other ones mentioned above to provide both an increase in mood as well as relief of pain. No drugs should be stopped suddenly without the advice of a doctor.

17. Pulsed Radiofrequency

Pulsed radiofrequency is a technique whereby an electric current is applied to nerves or nerve endings, which are sensitive. Electrical stimulation seems to desensitise the nerves and about 50% of patients experience a 50% reduction, which lasts for 6 months to a year. There may be a few weeks to a month or 2 of increased pain before the relief is experienced. No high temperatures are used and, therefore, the technique itself does not cause any clinical nerve injury as far as we are aware. It can be repeated if necessary. Often local anaesthetic and steroids are injected at the time to help cover the initial post operative soreness, and the pros and cons of those injections also have to be considered.

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18. Nucleoplasty

This short paragraph should be read in conjunction with the leaflet that is routinely sent out with the clinical correspondence. It is important to realise that no procedure is risk free. Nucleoplasty is often used when surgery is not thought to be appropriate but it is still clinically felt that the disc is symptomatic either itself or by irritating a nerve. Some centres, particularly in Europe are offering nucleoplasty first line and only then performing open surgery if necessary. As with any procedure on the spine there is always a chance of nerve damage, infection including the risk of discitis and worsening of symptoms, and the estimates are that the chances of this are 1% or less. If discitis occurs it will need to be treated by a course of antibiotics. There is obviously no guarantee that nucleoplasty will work if it is suggested and certainly in the United Kingdom it is a relatively new technique, although it is promoted and performed in Continental Europe in particular with increasing frequency.