



Introducing Health Sciences: The Pain Clinic

Controlling Pain Through Medication

Doctor

There are various groups of treatments available. I think you'll understand if I say that the first treatment in a way is simply to speak with a patient, or even to listen to the patient, and help them to understand what the problem is because very often just an understanding of a problem makes the patient feel much better and that the pain is much less of a problem for them, it falls into place. The second line of treatments are probably the medicines and drugs that we give; sometimes they're conventional painkillers such as paracetamol or morphine, often they're special painkillers that are used for nerve pain because pain arising within a nerve, or the nervous system itself, often does not respond to ordinary painkillers, even the strong ones, and so we use special nerve pain medicines. Sometimes we inject local anaesthetic and steroid, or other substances, around nerves to try and reduce the inflammation in the nerve, and therefore reduce the pain; sometimes we inject steroids into painful joints, for example. Sometimes we can reduce pain by getting the body to work better, particularly the muscular skeletal system, if we can get the muscles healthier, they're often far less painful, and they can support other structures such as the spinal column much better, and so there's less pain in the spinal column. Some people's pains have quite an emotional component to them as well, maybe somebody who's very depressed will feel their pain more acutely than normal, and so we may prescribe anti-depressant medications, or we may suggest that the patient see one of our clinical psychologists to work on the feelings associated with the pain.

Doctor

And we were talking about how it was a pinched nerve, wasn't it?

Woman

That's correct.

Doctor

These are the nerves that come out of your lumbar spine and go down your leg, and your nerve is being nipped in the spine, because this joint here has got arthritis in it, and it's grown too big, so it's been nipping this nerve, you know, so although the pain is felt down the leg, the problem is in the back, isn't it?

Woman

Yes.

Doctor

So if we can get it 60 or 70% better then that will be worth it.

Woman

I'll be very grateful for that, I will.

Doctor

Good. Let's do it.

Doctor

Right, screening please. Thank you. That's it. And some local anaesthetic now going the skin, it'll sting and then it'll go numb. I'm just going to pop this little thin needle down towards where the nerve is sore.

Commentary

Inserting a needle close to someone's spine is obviously a delicate task. Fortunately as well as years of experience to draw on, Dr Ordman can also take x-ray pictures, which show him exactly where the needle is, and also what happens when he injects first the dye, and then the steroid itself.

Doctor

So hello, what I've done is put the needle just beside the spine so it's just next to where that little nerve comes out of the spine, so we're getting as close as possible as we can to the nerve, that's pretty good, you can probably see the silhouette of the needle just next to that clear area which is the hole where the nerve comes through, you can't see the nerve itself, but you can see where it comes through. What I'm going to do now is put some contrast medium down the needle so it'll show up on the x-ray screen, and we can see where the drug is going. Helen, I'm just going to put the contrast medium down the needle and again you might just feel some pressure on the nerve as it goes in. Okay, that's good, and shot please. Well that's very exciting because we can see on the screen that the drug has zoomed along the nerve into the spine, into the inside of the spine. What we can see here now that I've put the needle next to the nerve as it comes out of the spine, and I've put some contrast medium down the needle and it shows up dark on the x-ray pictures, and last time we did this which was about two weeks ago, the dye really didn't want to flow alongside the nerve into the spine because there simply wasn't room there, there was far too much inflammation, but as we've heard from our lady, there's much less squeeze on the nerve now, it's much less painful and this is very nicely illustrated by the fact there's lots of room round the nerve now for the contrast medium to flow alongside it.

We're going to put the steroid injection down next to the nerve now, so we'll see if it gives you a feeling of pressure as I do it. Did you feel that? Where did you feel it? It's in the same sort of place as some of your pain, ok that's good, and if we have another shot now please. And in fact you can see that the drug, the steroid, has pushed the contrast medium out of the way so now we can be pretty confident that the steroid is now sitting around the nerve which is where we want it to be. So that's good, we've done what we wanted to do.

Commentary

Let's look at what you've just seen, but in terms of the familiar neurons and the connections between them. Suppose that a nerve gets squeezed at a point near to the spinal cord. The site is indicated by the black arrow. At the site of damage a high frequency of action potentials is initiated in the axons of nociceptive neurons as shown by the one here. Extreme pain is felt.

Suppose now that an anti-inflammatory injection, as indicated by the green arrow, and the pressure on the nerve is reduced. A lower frequency of action potentials is the result with a corresponding reduction in pain.

Doctor

Well the procedure which we carried out today was aimed to help a lady who had pain caused by the fact that one of her nerves was being pinched by some bone, some new bone that had grown in her spine as a result of the changes of increasing age. This lady had pain experienced all the way down her leg as far as her ankle. And again that's difficult for the patient to understand – how come I have pain in my leg when the problem's in my back? What we did with x-ray screening to help me see what I was doing was lie the lady on her tummy, and then I passed a fine needle through the skin and muscles so that it lay very close to where the nerve comes out of the spine, where it's being pinched by the bone. And having made sure that the needle was in the right place I injected a dose of steroid mixed with a local anaesthetic next to the nerve, and over the next few days this is going to settle the inflammation of the nerve caused by the fact that it's rubbing against bone, and by reducing inflammation we're going to reduce the irritability of the nerve, and hence the number of nociceptive signals arising within the nerve itself. If the problem is a new one, if the inflammation in the nerve is fairly recent, then there's a good chance of stopping the pain perhaps forever, that's a cure, I guess. But in the chronic pain clinic we can't always do cures and very often an injection such as the one we saw today may only last for a few months, or even less, and have to be repeated. But even a 50% reduction in pain is of great advantage

to the patient. It can reduce the pain from screaming pitch to just about falling into the background, and if we have to do the procedure two or three times a year I would argue that's fine. Sometimes we simply cannot help in this way and we have to use long-term medications or other techniques.

Woman

Shall I continue taking the tablets?

Doctor

Is this Gabapentin – is that the one?

Woman

Gabapentin andStatin, I don't know if I could show you this....

Doctor

Well they're definitely exactly the same medicine but they're slightly different forms.

Woman

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Commentary

Of the various drugs that can be used in pain relief there's a useful group known as tricyclics.

Doctor

Well the tricyclics are a particularly interesting group of drugs that we use, principally for nerve pain. Originally they were developed for treating depression but more recently they've been used much more for treating nerve pain, and they work in three or four distinctive ways, all of which are useful. Firstly in the periphery, in the peripheral nerves, they can block abnormal surging channels on damaged nerve cells, thereby calming them down. Secondly in the spinal cord they play a different role where they tend to block the transmission of nociceptive signals from the peripheral nerve into the nerves of the spinal chord, thereby reducing the transmission of nociceptive signals up to the brain. Tricyclics are also anti-depressants so they tend to treat the depression which almost always goes with long-term pain.