Treatment options for trigeminal neuralgia

The evidence is poor for most non-drug options, but such treatments are needed

Patients describe the sudden and severe pain of trigeminal neuralgia as a "red hot needle" or "forked lightning" pain in the face. The French term *"tic doloreux"* emphasises the suddenness of the pain that may be triggered by touch or cold. This characteristic pain affects four to five people in 100 000. It occurs in bouts lasting weeks or months, with periods of remission of months or years. Evidence is increasing that in most patients trigeminal neuralgia is caused by compression of the trigeminal nerve root, close to its entry into the pons, by an aberrant arterial or venous loop.[1] Other compressive lesions are responsible in a few patients. About 2% of patients with trigeminal neuralgia have multiple sclerosis. Standard first line treatment is carbamazepine.[2 3] Other drugs including lamotrigine, phenytoin, gabapentin, oxcarbazepine, topiramate, baclofen, and clonazepam have some effect, although studies are more limited.[3] Many patients fail to have a sustained response to drugs, so what are the possible "non-drug" options for such patients?

Interventions include microvascular decompression, which treats the putative cause surgically by separating the trigeminal nerve from adjacent blood vessels, and a variety of methods of producing a partial trigeminal nerve lesion including neurectomy, radiofrequency thermal ablation, balloon compression, glycerol injections, and radiosurgery. The evidence for these treatments for trigeminal neuralgia does not come from randomised trials.[2] People involved in treating patients with the severe pain of trigeminal neuralgia are often readily convinced of the efficacy of an intervention by the timing of pain relief. This influences the clinical uncertainty that might otherwise lead to performing trials and particularly to using placebo controls. Given the severity of the pain it is unsurprising that no studies have been conducted of the natural history of untreated patients with trigeminal neuralgia, so the rate of spontaneous remission is not known.

Some large sequential case series from specialist centres report microvascular decompression rendering over two thirds of patients pain free at 10 years and with 1% experiencing facial numbness.[4] Other studies are less optimistic and highlight complications, which include injury to the cerebellar and eighth cranial nerve[5] and death rates of 0.2-1%.[6] Newer techniques in magnetic resonance imaging may identify the microvascular compression more readily and thus improve the selection of patients. Microvascular decompression offers a treatment that is not designed to damage the trigeminal nerve and has good results in expert hands. However, it carries a small but definite risk of major, including fatal, complications and, like all surgical procedures, is operator dependent.

Destructive lesions provide a safer alternative at the cost of greater loss of trigeminal function. This sensory loss can occasionally itself be very painful—so called anaesthesia dolorosa. Balloon compression or radiofrequency thermal ablation of the trigeminal ganglion, glycerol injections into the trigeminal cistern, and neurectomy are alternatives, with some success reported. Generally greater sensory loss seems to be associated with less frequent recurrence of pain. Numbness or dysaesthesia are reported in over 15% of patients treated with these techniques. The reported long term benefits vary widely (25-80%) depending on duration of follow up and how response to treatment is defined.

Stereotactic gamma knife radiosurgery, the newest destructive procedure, entails the delivery of a focused beam of radiotherapy to the proximal trigeminal nerve. First used in 1951 it has been more widely used since the mid-1990s. The evidence is based on case series with a single randomised study comparing two methods of delivery of radiotherapy.[7] The case series have different patient populations, varying doses of radiation and targets, a variety of assessment methods, and differing follow up. However, reports are encouraging, with 70-80% of patients describing freedom from pain in the short term,[8–10] although up to 50% may relapse.[11] Side effects include facial dysaesthesia (up to 12%),[9] corneal irritation, vascular damage, hearing loss, and facial weakness, varying with the dose schedule and target area. Follow up is short compared with the 10 years cited for other treatment modalities, and uncertainty persists about possible late complications of radiotherapy—for example, cerebral oedema or neoplastic transformation.

The National Institute for Clinical Excellence (NICE) recently issued a consultation document on stereotactic radiosurgery for trigeminal neuralgia.[12] It has provisionally decided that the evidence is inadequate to support its use without special arrangements for audit or research and that it should be the subject of a systematic review. This seems reasonable and hopefully will lead to further studies.

NICE is limited by its brief to consider radiosurgery for trigeminal neuralgia in isolation. However, the evidence for other modalities of non-drug treatments for trigeminal neuralgia is qualitatively similar. NICE should broaden its view to say that all these treatments need to be re-evaluated and compared with modern trial methods, and it should not simply pass judgment on newer treatments without assessing the old. That way we might know how best to help these patients.

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Delayed prescriptions

Can reduce antibiotic use in acute respiratory infections

Although a reduction has occurred in the use of antibiotics for upper respiratory tract infections, international evidence indicates that they continue to be used for these conditions.[1] This is in spite of Cochrane reviews indicating minimal or no benefit from antibiotics for sore throat, acute bronchitis, the common cold, and otitis media. This situation of potentially inappropriate prescribing prompted one commentator to suggest the use of delayed prescriptions (also known as "back-pocket," "back-up," or "as needed" prescriptions).[2] These are prescriptions written with a proviso that they not be used immediately and only if symptoms do not improve.

The first randomised trial of delayed prescriptions for respiratory symptoms was undertaken by Little et al (1997), who gave antibiotics, with the prescription to be filled immediately or after three days, or no antibiotics for acute sore throat.[3] The immediate group filled 99% of the antibiotic prescriptions whereas the delayed group filled only 31% with no apparent serious harms. In the group not given any antibiotics 13% ended up filling an antibiotic prescription after a return visit to the doctor. Critics of delayed prescriptions say that the strategy increases the use of antibiotics by comparing the 13% with the 31%. This is not how we see the use of delayed prescriptions. Their use should be restricted to those patients who request antibiotics or whom their doctor thinks they want an antibiotic yet does not think one is immediately indicated. However, only one of the randomised trials has examined such a specific group.[4]

Five controlled trials of delayed prescriptions have been published, conducted in patients with otitis media,[5 6] sore throat,[3] cough lasting seven days,[7] and the common cold.[4] In three trials the patients in the delayed prescription arm had more symptoms during the trial, which implies that patients are willing to tolerate some symptoms to avoid antibiotics.[3 6 7] Ironically the study with the highest reduction in relative risk (75%) was the study in children with otitis media, in spite of the children having more symptoms.[6] We speculate that parents may be more concerned about avoiding antibiotics in their children than in themselves—a view supported by a qualitative study of patients with sore throat.[8]

The largest reductions in antibiotic consumption occurred in the three studies which required patients to return to the surgery to collect the prescriptions.[3 6 7] Although most of the studies had pick-up suggestions of three days or less, the study on acute cough, which suggested waiting seven days, still produced a reduction in relative risk of 55%. An additional benefit of delayed prescriptions may be a reduction in repeat visits, at least for sore throat.[9] The reduction in usage of antibiotics for infections of the upper respiratory tract through using delayed prescriptions is as effective as, and in many cases more effective than, educational projects.[10–11] However, no studies have directly compared delayed prescriptions with educational projects.

Some interesting insights have been obtained from qualitative work in patients and doctors on delayed prescriptions.[12] Not all general practitioners endorsed the use of delayed prescriptions—some had concerns that they may be missing or masking serious illness, with concomitant medicolegal issues. Some worried that their patients may consider them incompetent. General practitioners thought that the positive aspects of delayed prescriptions included avoiding side effects, reducing the drug bill, educating patients, and involving patients in decision making. Although reducing antibiotic resistance was a major issue for general practitioners it was not a concern for patients.[12] More education for patients around this issue may be warranted, and we suggest that the delayed prescription be used as a tool to help improve patients' knowledge about infectious disease and awareness of the need for monitoring their own progress.

Research is also needed on other methods of providing a barrier other than a patient's return to the practice if he or she is not getting better. Such barriers could be asking patients to wait seven days rather than three and post-dating prescriptions. If delayed prescriptions are to become routine then surgeries will need to have systems to hold the prescription at the front desk and to allow patients easy access for reassessment if concerned about their symptoms. They may also need to consider following up patients with delayed prescriptions to monitor adverse events.

In the qualitative research on delayed prescriptions several general practitioners no longer used this strategy, once their patients had become "trained" not to expect antibiotics. As prescribing becomes more rational the need for delayed prescriptions for respiratory tract infections may in time become redundant.

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