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Botulism

RELAX AND ENJOY IT

The mere mention of botulism is enough to give most people the shudders. But botulinum toxin, which causes it, is winning some defenders. The ingenuity of a Californian ophthalmologist, Dr Alan Scott of the Smith-Kettlewell Eye Research Institute in San Francisco, has transformed this deadly food poison into a useful drug.

Botulinum acts by relaxing muscles so much that they become paralysed. So Dr Scott reasoned that it might be helpful when muscles need a bit of a rest. Having first tested botulinum toxin on animals in the late 1970s, he cautiously began to inject small doses of it into people's muscles, to treat two serious disorders of sight. In the first, strabismus, an imbalance between the muscles of the two eyes produces such symptoms as squints, cross-eyes or wall-eye. It can lead to blindness if neglected. In the other, blepharospasm, the problem is with the muscles that control the lids. Their constant involuntary blinking can lead to spasms that clench them tightly shut.

It turns out that injections of botulinum toxin can cure strabismus and reverse blepharospasm if repeated at monthly intervals or several times a year. A type of involuntary grimacing, hemifacial spasm--which forces one eyelid shut and causes other muscles on the same side of the face to contract--responds to the same therapy. America's Food and Drug Administration approved muscular injections of botulinum toxin for all three purposes in December 1989. The toxin, sold as Oculinum by Allergan Pharmaceuticals in Irvine, California, but more often called botox, is now commercially available.

What started as therapy for this trio of disorders is now proving to be far more versatile. Last summer for example the American Academy of Neurology endorsed it for the relief of chronic torticollis (which painfully distorts the neck), for spasms of the muscles around the vocal chords that can reduce the voice to a hoarse whisper, and for soma muscle spasms that cripple the tongue and force the mouth and jaws either to gape open or lock shut. In November a scientific panel assembled by the National Institutes of Health did the same.

Except for strabismus, all these disorders are types of dystonia, which ranges from conditions affecting the hand and forearm (which go by such names as writer's or musician's cramp) to those that twist almost the whole body into contorted postures and wrack it with grotesque movements. Early trials of botox for such

things have had promising results. It seems to be at least as effective for them as either surgery or oral drugs and usually easier on the patient as well (though sometimes only some of the affected muscles can be injected with the toxin, while the rest have to be treated by different means). There have also been promising results with a rare but unrelenting type of constipation, for the bladder spasms that make paraplegics prone to kidney infections and for the spasms that sometimes come with cerebral palsy and the late stages of multiple sclerosis. Even stuttering is on the "promising" list.

The toxin has its limitations. For one thing, doctors need special training if they are to use it properly. For another, only so much of it can be administered safely at one sitting, lest the patient be killed instead of helped. For the time being there is no antidote to an overdose.

Even small doses can have side-effects which a doctor must be prepared to recognise and treat. Some patients whose throat muscles are injected with the drug, for example, need a soft or liquid diet for a while because of temporary difficulty in swallowing. Presumably this is caused by the toxin spreading from where it is injected to neighbouring muscles. Most patients so far have gladly put up with the relatively minor complications. Meanwhile, there is already talk in medical circles of further uses for botox, making it a fair bet that the poison may be headed for an even more brilliant career.

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