MANN'S REPLY:

I read with great interest Mann's report of a patient receiving botulinum toxin injections for spasmodylic torticollis who developed sialoasis and swelling of the parotid glands after each set of injections.1 The local diffusion of the toxin into the parotid may explain the swelling of the smooth muscle of the salivary ducts was proposed as a possible underlying mechanism.1

The inhibitory action of botulinum toxin is not confined to the neuromuscular junction. All the autonomic cholinergic fibres including the major secretomotor fibres to salivary glands are similarly blocked. Local diffusion and “chemodenervation” of the parotid glands leading to reduction of salivary flow and the development of chronic recurrent parotitis seems to be a more likely explanation for this patient’s symptoms. Dickson and Shevky in 1923 showed that tyraminic nerve-induced salivary flow was blocked by the toxin in cats.2 In botulinum, dry mouth is a common symptom, occurring in about 93% of patients.3 Dry mouth has also been reported in some 30% of patients after cervical injections for spasmodylic torticollis.4 Paradoxically, excessive salivation has long been known to occur in botulinum.5 A similar paradoxical effect on lacrimal glands producing watering of the eyes has been observed in patients receiving periorbital injections for blepharospasm or hemifacial spasm.6 This paradoxical effect of the toxin on the “neuroglandular junction” remains unexplained. Increased saliva production may partly be responsible for parotid swelling after botulinum toxin injection in the patient reported.

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**Immunoglobulin treatment in human and experimental epilepsy**

The paper of van Engelen et al1 mentions some positive effects of intravenous immunoglobulins (IVIg) in the treatment of refractory epilepsy. No reference about our experience in that field is mentioned, however, in the recent literature reviewed by Van Engelen et al.1

In 1983, we successfully treated with IVlg a patient with severe Lennox-Gastaut-syndrome who still remains seizure free.2 Thereafter, in a first open study, 20 patients with Lennox-Gastaut syndrome and partial epilepsy were infused with IVlg.3 This treatment gave excellent results in two patients, who were seizure free for months but relapsed afterwards although their seizures were less severe than before the infusions. In this open study, 15 patients had partially improved including eight with a pronounced decrease of seizures. It was concluded that IVlg treatment may be very helpful not only in West and LennoxGastaut syndromes, but also in partial epilepsy, including Rasmussen's syndrome.4 At that time, however, all studies published about IVlg in refractory epilepsy were open designs—with the exception of that of Illum et al,5 which was a single blind, cross over trial—with controversial schedules and doses. Indeed the patients received from two to more than 10 infusions with doses ranging from 100 mg to 1 g/kg/perfusion and no relation was assessed between dose or schedule of IVlg and clinical responsiveness. An overview of the medical literature involving about 200 epileptic patients treated with IVlg showed a positive response to this treatment in around 30% of the patients.5 Taking that into account, in 1989 we initiated the first double blind study to establish a dose of IVlg for treatment of epilepsy.6 Sixty one patients were randomly assigned to receive either IVlg (n = 43) or a placebo (n = 18) at three different doses (100, 250, or 400 mg/kg/infusion). No dose effect was found (P = 0.31). The data for the whole study population showed an improvement in 32% of patients treated with IVlg in (accordance with previously reported open studies), compared with 27-8% in the placebo group; this positive trend was not significant (P = 0.09). When only the patients with partial epilepsy were assessed, a significant difference in favour of the IVlg treatment was found (P = 0.04) and this was confirmed in the subgroup of partial epilepsy with secondarly generalised seizures (n = 30) regardless of the dose (P = 0.04). Two patients became seizure free. One with LennoxGastaut syndrome needed no further anticonvulsant medication. The other, who had partial epilepsy, relapsed but is still better than before the IVlg.

The mechanisms of action are unknown. We found some relation between a lower serum IgA level and a better clinical response in the first study,1 however the correlation in the double blind study2 although we noted a trend in favour of a lower serum IgA levels. IVlg in refractory epilepsy are well tolerated but the major problems related to this treatment concerned its cost and the hazards of transmission of infectious diseases to blood derivatives. Immunoglobulins may be considered safe however, as their manufacturing procedures are known to inactive human pathogenic viruses such as hepatitis A, B and C, and HIV.1

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**References**


Van Engelen et al reply: We thank van Rijckevorsel and Delire for their interest in our paper on immunoglobulin treatment in human and experimental epilepsy.1 Their point was that we did not mention their experience in that field. Our paper was an overview of some aspects of immunoglobulin effects in human and experimental epilepsies; it was not a review of the medical literature on immunoglobulin treatment in human epilepsies. We wrote a 1993 review on current immunoglobulin treatment in human epilepsies,2 and there we recognised their contribution in the field by citing three papers published by van Rijckevorsel and colleagues.

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