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Eye (2014) **28**, 629–632; doi:10.1038/eye.2014.31;
published online 28 February 2014

**Sir,
Comment on 'Acute thyroid eye disease (TED):
Principles of medical and surgical management'**

We congratulate Drs Verity and Rose on their excellent update and review of the management of acute thyroid eye disease.¹ They state that use of Botulinum toxin (BoNTA) for eyelid retraction in this disease state is inadvisable. Certainly, through a transcutaneous approach we agree that the correct placement of BoNTA without affecting the superior rectus or orbicularis oculi is variable in both its efficacy and effectiveness.² However in our experience, we find transconjunctival administration to be a much safer and predictable approach.

Injection of BoNTA through a transconjunctival approach is ideally suited for patients with active thyroid orbitopathy and moderate or severe eyelid retraction. It can be used as an adjunct to other supportive therapies.³ Rather than using the standard 2.5 units of BoNTA that would achieve complete ptosis in patients without thyroid orbitopathy, we have found 5 units in 0.1 ml to be safe and effective in patients with thyroid eyelid retraction. This very rarely gives rise to severe or prolonged ptosis, and we have not encountered BoNTA-induced hypotropia or superior rectus underaction; a finding consistent with studies that have utilised even larger subconjunctival doses.^{4,5}

Topical local anaesthetic is instilled and the upper eyelid is everted. A minimum dose of 2.5 units and maximum of 7.5 units (usual dose 5 units for scleral show 1–2 mm) BoNTA (Botox diluted 5 units/0.1 ml, Allergan Limited, UK) is administered via a single injection into the subconjunctival space at the superior margin of the central tarsal plate. Within 48 h, eyelid retraction and lagophthalmos improves and a better aesthetic appearance is achieved, particularly during active disease when patients may be unsuitable for surgical lowering.

Conflict of interest

The authors declare no conflict of interest.

References

- 1 Verity DH, Rose GE. Acute thyroid eye disease (TED): Principles of medical and surgical management. *Eye* 2013; **27**(3): 308–319.

- 2 Shih MJ, Liao SL, Lu HY. A single transcutaneous injection with botox for dysthyroid lid retraction. *Eye* 2004; **18**(5): 466–469.
- 3 The management of thyroid-related eyelid retraction. In: Leatherbarrow B. *Oculoplastic Surgery*. 2nd edn. Informa Healthcare: London, 2011, pp 177–191.
- 4 Uddin JM, Davies PD. Treatment of upper eyelid retraction associated with thyroid eye disease with subconjunctival botulinum toxin injection. *Ophthalmology* 2002; **109**(6): 1183–1187.
- 5 Morgenstern KE, Evanchan J, Foster JA, Cahill KV, Burns JA, Holck DE *et al.* Botulinum toxin type A for dysthyroid upper eyelid retraction. *Ophthal Plast Reconstr Surg* 2004; **20**(3): 181–185.

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Eye (2014) **28**, 632; doi:10.1038/eye.2013.292; published
online 7 March 2014

**Sir,
Response to Drs Litwin and Malhotra**

We are grateful to Drs Litwin and Malhotra¹ for their interest in our paper,² and for outlining a useful adjunctive therapy for upper eyelid retraction during the acute phase of thyroid eye disease. We note with interest that double the normal dose of BoNTA is required, this suggesting an attenuated effect likely to be due to hypervascularity of the inflamed tissues. This higher dose confers a risk of reduced superior rectus action and Bell's response, with the studies by Morgenstern *et al*³ (transconjunctival route, active disease), and Shih *et al*⁴ (transcutaneous route, inactive disease) both noting increased diplopia in a small number of patients. It is this risk—and consequently that of corneal exposure in patients whose ocular elevation may already be compromised—that is of concern, but the authors (RM and AL) are to be congratulated for not having had this complication to date in their own series, and we are grateful for their insights on the management of these patients.

Conflict of interest

The authors declare no conflict of interest.

References

- 1 Litwin AS, Malhotra R. Comment on 'Acute thyroid eye disease (TED): Principles of medical and surgical management'. *Eye* 2014; **28**(5): 632.
- 2 Verity DH, Rose GE. Acute thyroid eye disease (TED): Principles of medical and surgical management. *Eye* 2013; **27**(3): 308–319.