

# Summary of: Facial aesthetics: is botulinum toxin treatment effective and safe? A systematic review of randomised controlled trials

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## VERIFIABLE CPD PAPER

### FULL PAPER DETAILS

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**Background** The use of botulinum toxin type A (BTA) in facial aesthetics for the treatment of wrinkles has recently become more popular as an alternative to surgical techniques. However, its true efficacy and potential adverse effects are still unclear. **Objectives** The primary objective of this study was to review the efficacy of BTA in facial aesthetics. A secondary objective was to determine whether there are any adverse effects associated with the procedure of using BTA in facial aesthetics. **Search strategy** We conducted literature searches on Medline (1977 to January 2009), Cochrane Controlled Trials Register (CENTRAL), EMBASE (1977 to January 2009) and CINAHL (1977 to January 2009). The search strategy also included reference lists of located articles and hand searching for randomised controlled trials (RCTs). We contacted authors of studies for further information where required. **Selection criteria** Randomised studies comparing BTA with placebo in facial aesthetics in a double-blind and crossover or parallel group design. **Data collection and analysis** Two reviewers independently assessed trial quality and extracted data. The area of face injected, assessment methods, outcome measures, duration of action of BTA and associated adverse effects were reviewed. **Results and discussion** A total of eleven RCTs involving 1,603 subjects were found, of which 1,203 were enrolled for treatment with BTA. The 11 trials were not directly comparable to each other due to differences in the areas of the face injected with BTA, length of study period, concentration of BTA used and outcome measures. The studies showed similar trends. The use of BTA showed improvements in facial wrinkles over placebo, with a peak effect reported at around one month and the effects lasting between 4–6 months. No studies reported any severe adverse effects. The incidence of blepharoptosis in glabellar lines treated with BTA was reported to be between 0–5.4%, and is related to the technique of injection into the muscles. The incidence of other side-effects such as headache, pain at injection site and mild bruising was similar in both the BTA and placebo groups. **Authors' conclusions** The use of BTA in facial aesthetics is more effective than placebo. The incidence of adverse effects associated with BTA is similar to placebo, with the exception of blepharoptosis which is reported to be 0–5.4% after treatment of glabellar lines with BTA.

### EDITOR'S SUMMARY

Increasing numbers of practitioners are now providing 'Botox' and other non-surgical aesthetic treatments and more and more patients are requesting them. The GDC has recently confirmed that it expects the same high standards of registrants choosing to provide these treatments as it does for any branch of dentistry, an indication that Botox in dentistry is here to stay.

This review by Gadhia and Walmsley investigates whether treatment of facial wrinkles with botulinum toxin A (BTA) works and whether there are any adverse effects of its use. As so often happens with work of this kind, the paper provides some incidental findings that are

important for future research in this area. The results of the review indicate that treatment of facial wrinkles using BTA is both effective and safe, at least in the short-term. However, the study also revealed a lack of randomised controlled trials comparing this treatment with placebo and found that the ones that exist are not directly comparable. The authors highlight a need for further studies looking at the long-term effects of BTA treatment and the effects, if any, of repeated injections, pointing out that such work would help clinicians determine the most suitable interval between treatments.

A number of Editor's summaries previously published in the *BDJ* have under-

lined the importance of evidence-based dentistry and the crucial role that systematic reviews can play in helping to inform current practice. Whether or not you consider 'Botox' treatment to be 'dental practice', it is a procedure practised by many dentists and its evidence base is just as important as that for any crown or filling. Gadhia and Walmsley's review is a welcome addition to this evidence base.

The full paper can be accessed from the *BDJ* website ([www.bdj.co.uk](http://www.bdj.co.uk)), under 'Research' in the table of contents for Volume 207 issue 5.

Rowena Milan,  
Journal Editor

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**IN BRIEF**

- The practice of BTA is effective in the field of facial aesthetics over placebo, and lasts between 4–6 months.
- There are few adverse effects of BTA if injected using careful technique.
- The incidence of blepharoptosis, associated with injecting BTA in glabellar lines, ranges between 0–5.4%.
- Further randomised controlled studies are necessary to establish long term effects of BTA and the effects of repeated injections.

**COMMENT**

The media have encouraged the public to realise that treatments to look younger are no longer confined to celebrities. One of the easiest ways to minimise signs of facial ageing is to have injections of botulinum toxin A (BTA) into the muscles which contract and create wrinkles.

As the market for this type of treatment has grown rapidly over this decade, the industry has not developed regulations accordingly. At one stage the public were having BTA injected into their faces by non-medical staff. Furthermore, even the proficiency of healthcare professionals has been hampered by the general lack of formal training. This has meant that, at best, many practitioners would be trained to the level of knowledge and competence of the trainer, which would be variable.

A reputable training company told me that they alone have trained over 3,000 dental professionals in the last couple of years in the therapy of treating wrinkles with BTA. That fact alone makes this systematic review of the use of BTA welcome, as it shines the light of science into this fast developing new branch of dentistry.

The authors of this paper have systematically reviewed the literature on the efficacy of BTA and assessed whether there were any adverse effects. Their work clearly shows that the use of BTA is effective in a single dose and that there are no long lasting effects. What the paper does point out is that more research is needed on

repeated use of BTA. The article is clear as to how the work was done, and is easy to follow. It covers all the normal BTA facial aesthetic procedures that are usually available and comments clearly on the research around those procedures, all of which should be very helpful for colleagues in adding to their current knowledge.

A. Gill,  
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**AUTHOR QUESTIONS AND ANSWERS****1. Why did you undertake this research?**

Botulinum toxin type A (BTA) is being widely used as a quicker, cheaper and non-surgical alternative to improve facial wrinkles. The aim of this paper is (1) to review the efficacy of using BTA in facial aesthetics, ie does BTA work?, and (2) to determine whether there are any adverse effects associated with its use. We hope the evidence gathered from the randomised controlled trials in this research contributes to the practice of evidence-based medicine and dentistry in the field of facial aesthetics.

**2. What would you like to do next in this area to follow on from this work?**

We recognise there is a lack of randomised controlled trials comparing the use of BTA and placebo to assess the efficacy and adverse effects. We found a total of 11 papers that met the inclusion criteria since 1977. Further studies in this area would contribute to the literature. We also recognise that there are no studies investigating repeated use of BTA in patients in a double-blind randomised controlled fashion. Such studies would enable clinicians understand if the effect of repeated injections of BTA would result in prolonged action at each consecutive treatment. It would also enable us to study the effects of BTA on nerve terminals and long term adverse effects. We hope our paper will prompt further research in this field.