

Corticosteroid and platelet-rich plasma injection therapy in tennis elbow (lateral epicondylalgia): a survey of current UK specialist practice and a call for clinical guidelines

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ABSTRACT

Background Tennis elbow is a common condition with a variety of treatment options, but little is known about which of these options specialists choose most commonly. Corticosteroid injections in tennis elbow may reduce pain in the short-term but delay long-term recovery. We have undertaken a UK-wide survey of upper limb specialists to assess current practice.

Methods Cross-sectional electronic survey of current members of the British Elbow and Shoulder Society (BESS) and the British Society for Surgery of the Hand (BSSH).

Results 271 of 1047 eligible members responded (25.9%); consultant surgeons constituted the largest group (232/271, 85%). 131 respondents (48%) use corticosteroid injections as their first-line treatment for tennis elbow. 206 respondents (77%) believed that corticosteroid injections are not potentially harmful in the treatment of tennis elbow, while 31 (11%) did not use them in their current practice. In light of recent evidence of the potential harmful effects of corticosteroid therapy, 136 (50%) had not changed their practice while 108 (40.1%) had reduced or discontinued their use. 43 respondents (16%) reported having used platelet-rich plasma injections.

Conclusions Recent high-quality evidence that corticosteroids may delay recovery in tennis elbow appears to have had a limited effect on current practice. Treatment is not uniform among specialists and a proportion of them use platelet-rich plasma injections.

INTRODUCTION

Tennis elbow is a common condition, with a reported incidence rate in the UK of 2.45/1000 person-years¹ and prevalence of 1.2%.² It is a common condition in patients of an economically active age¹ and is a common reason for sickness absence in workers.^{3 4}

The term 'epicondylitis' has traditionally been used for the condition and implies an inflammatory element.

There is however evidence that the main pathology may be more tendinosis than tendinitis⁵⁻⁷ as well as an emerging body of evidence that corticosteroid injections are either only beneficial in the short term,⁸ have no benefits⁹ or may actually be harmful over longer periods.¹⁰⁻¹⁴ This has led to calls for a reduction or discontinuation of their use.¹⁵

Other injectable therapies have been investigated, including platelet-rich plasma (PRP),¹⁶⁻²⁰ botulinum

toxin A²¹⁻²³ and sodium hyaluronate.²⁴ Traditional conservative management has consisted of rest, eccentric exercise^{25 26} anti-inflammatory medications²⁷ or a simple 'wait and see' policy.^{10 28} Counterforce braces and other orthotic devices²⁹ have been used, along with shock wave therapy.³⁰⁻³³ Surgery is usually reserved for intractable cases.³⁴⁻³⁶ The natural history of the condition, however, is usually one of a chronic self-limiting disease.

There are currently no UK national guidelines or literature consensus for the optimal management of tennis elbow. Therefore we surveyed the current practice of members of the British Elbow and Shoulder Society (BESS) and the British Society for Surgery of the Hand (BSSH) to establish which therapies are used. This group represents a sizeable body of secondary and tertiary healthcare professionals in this field. Our hypothesis was that corticosteroids were still in widespread use, despite evidence showing that this may not be the best long-term treatment.

METHODS

A simple 16-point multiple choice and free-text questionnaire (see online supplementary appendix A) was designed by the authors and independently approved by the committees of the BESS and the BSSH. This was distributed through email to all members of both societies by their respective secretarial officers. Participants were requested to respond through an online internet link.

Five hundred and forty-five members of BSSH were emailed, including 297 full members who are all consultants and 248 associate members who may be consultants or junior doctors. Five hundred and two members of BESS were emailed, including 405 doctors of all grades and 97 allied health professionals. Thousand and forty-seven emails were sent in total.

The online submission was closed 6 weeks after the original email was sent; no reminders were issued in accordance with the policies of each society.

RESULTS

Thousand and forty-seven members of both societies were emailed and 271 responses were received (25.9%). One hundred and twenty-five responses were from BSSH members with 146 from BESS. The majority (85.6%) of responses were from consultants, with 7.7% from allied health professionals and 4.4% from training grade doctors.

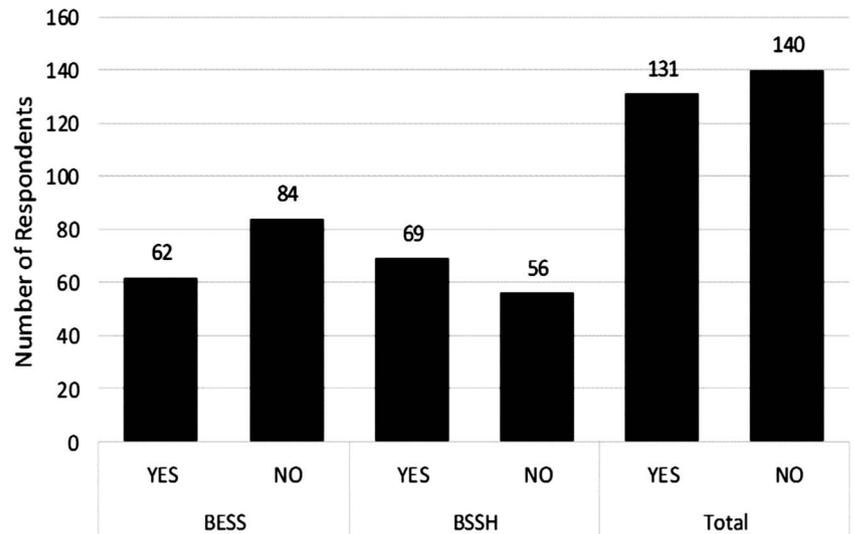
Forty-eight per cent of respondents use corticosteroid injections as their first-line intervention for



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Figure 1 Use of corticosteroid injections as first-line treatment for tennis elbow.



tennis elbow (figure 1), with 52% overall using them in the majority of their patients. Eleven per cent of respondents reported that they did not use corticosteroid injections at all. Fewer than half of respondents who used corticosteroid injections warned of the risk of infection and fewer than two-thirds warned that symptoms might not improve (figure 2). Seventeen per cent reported only considering one injection in each elbow for tennis elbow, while 13% reported having no limit on the number of injections they would perform (figure 3). Only 51.5% of those who inject corticosteroids routinely aimed for the most painful point, while 41% aimed routinely for the extensor tendon origin and 7.4% for the lateral epicondylar bone. Eighty-nine respondents supplied details of the corticosteroid preparation routinely used for injection. Of these, 33% used triamcinolone acetonide, 60% used methylprednisolone acetate and 7% used hydrocortisone.

Two hundred and eight respondents (77%) believed that corticosteroid injections are not potentially harmful but 40% of all respondents have either reduced or discontinued their use (figure 4).

Fifty respondents have used a substance other than cortisone for injection; 43 used PRP and 77% of these believed that it is effective (table 1). Six had used botulinum A toxin and one reported using sodium hyaluronate.

Sixty-three per cent of respondents regularly use a counterforce brace or other orthosis as part of their management of

tennis elbow. Seventy-seven per cent reported that physiotherapy has a role in acute tennis elbow and 78% in chronic tennis elbow. Fifty-two per cent use watch and wait as their first-line treatment for tennis elbow.

DISCUSSION

Our study is the largest UK survey of the practice of upper limb surgical specialists with regard to injection therapy of tennis elbow. There remains a high prevalence of the use of corticosteroid injections, although a proportion of UK specialists has reduced or discontinued their use. This is likely to be mainly due to scepticism regarding long-term efficacy, although there may be a proportion who believe that harm may be caused. A sizeable proportion of practitioners have used PRP and believe that it is effective. Botulinum toxin and sodium hyaluronate were used only by a minority.

With respect to tennis elbow pathology, Nirschl³⁷ reported a 'mesenchymal syndrome' with a predisposition to tendinosis and abnormal vasculature at multiple sites and this common degenerative theme is corroborated by histological studies.^{38 39} It is now generally accepted that inflammatory cells are absent and there is a significant degenerative component.^{5-7 37 39}

There is level 1 evidence that corticosteroid injections are only beneficial in the short term,⁸ have no long-term benefits⁹

Figure 2 Percentage of respondents using corticosteroid injections who routinely inform patients of specified complications.

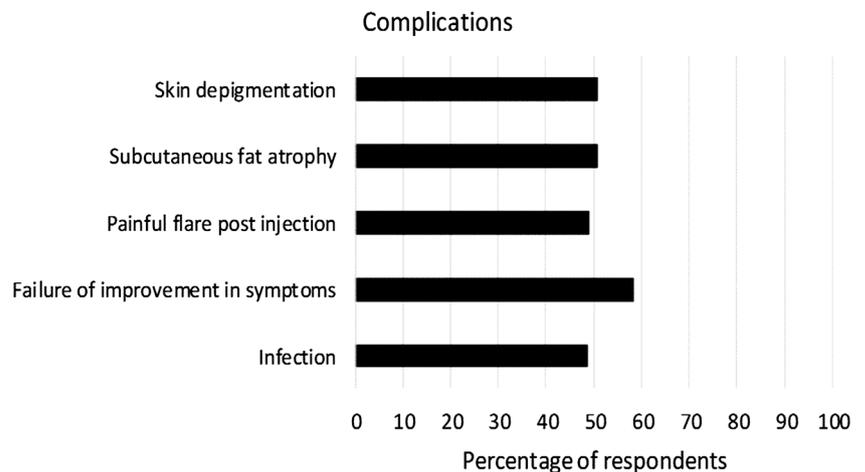
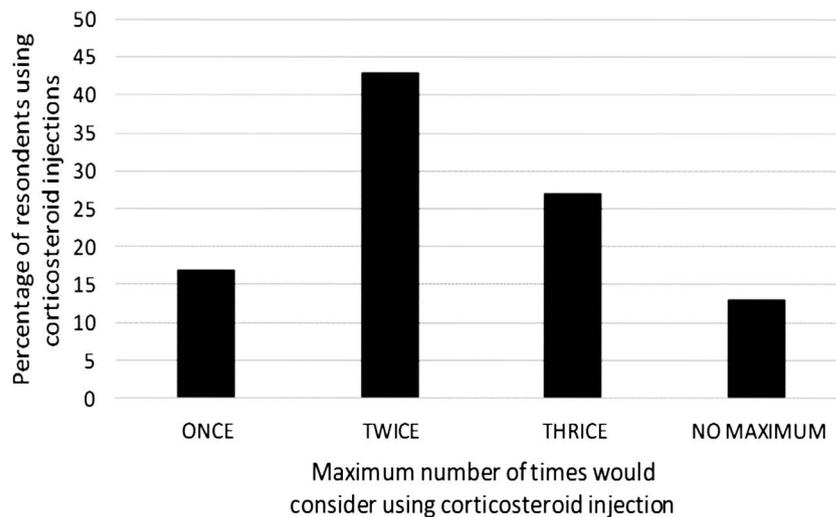


Figure 3 How many times respondents would consider using corticosteroid injections into each elbow of a tennis elbow patient.



or may actually be harmful over longer periods.^{10–13} This has led to calls for a reduction or discontinuation of their use.¹⁵

Furthermore which site to inject is a matter of controversy with no clear answer. Two hypovascular zones have been identified: one at the lateral epicondyle and one 2–3 cm distal to the extensor origin⁴⁰; their importance in relation to the efficacy of injections is unclear. The consensus statement from the International Scientific Tendinopathy Symposium 2012 points out an important distinction between injections directed into the tendon and those targeted outside the tendon⁴¹ but no UK guidelines exist regarding the selection of patients for each therapy.

There is a paucity of studies directly comparing different types of corticosteroid preparation for tennis elbow. We are aware of only one previous study; this demonstrated no difference between water-soluble and water-insoluble agents.⁴² Our study shows that current practice favours the use of crystalline esters with a large particle size and low solubility such as methylprednisolone acetate and triamcinolone acetonide. This seems intuitive to minimise absorption and maximise the local effect but it is unclear whether this results in a differing efficacy or side effect profile; further investigation is required.

It is interesting given the specialist nature of our participants that 77% do not believe corticosteroid injections to be harmful, yet 40% are reducing or discontinuing their use. Developments

in the literature therefore certainly influence individual clinicians over and above their personal beliefs and provide an overview of evidence beyond that available through experience alone. To reinforce this we recommend that major specialist societies develop clinical guidelines. To assist in their application patient education is critical and should include references to the evidence base. The concomitant development of leaflets and web-based material that has wide reach would be a useful adjunct in this endeavour.

PRP is designed to contain growth factors that promote healing of injured tissue.⁴³ A number of methods exist to prepare the injection and hence the term ‘PRP’ can cover a variety of preparations. The International Olympic Committee (IOC) consensus meeting in 2010 suggested that techniques be standardised and classified.¹⁹ PRP injection was used by a sizeable proportion of our participants. Some studies have demonstrated superior cure rates and pain scores for 2 years post-therapy when compared to corticosteroids;^{17 44 45} however, this may be due to harm caused by corticosteroids rather than a real benefit over conservative treatments.¹³

LIMITATIONS

This study was limited to fairly straightforward questions appropriate for a survey. Those surveyed were not obliged to respond and increased detail would likely lead to a lower return rate. We

Figure 4 Proportion of respondents changing practice due to the recent literature developments.

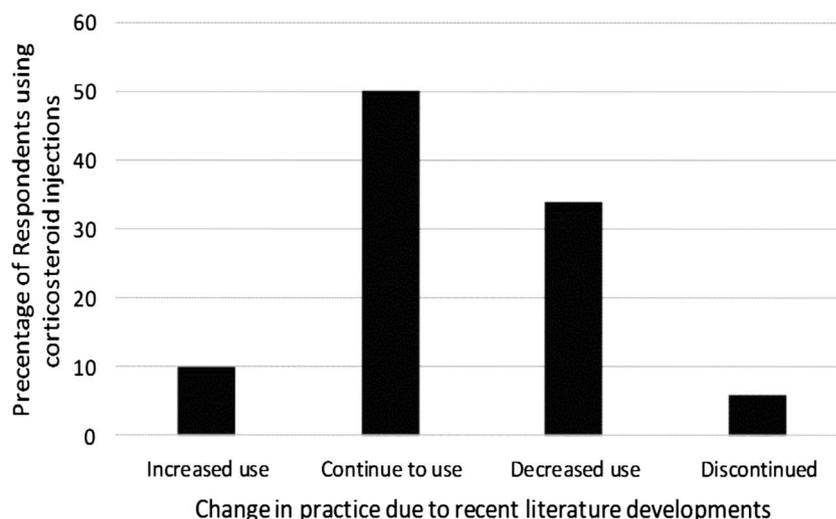


Table 1 Respondents' use of injectable therapies other than cortisone

	Have you used these treatments for tennis elbow?		Do you believe they are effective? Yes
	Yes	No	
PRP	43	228	33 (77%)
Botulinum A	6	265	4 (67%)
Sodium hyaluronate	1	270	1 (100%)

PRP, platelet-rich plasma.

relied on the accuracy of the email databases of the two respective societies to ensure that all their members were contacted. Inaccurate address data would artificially lower the response rate. However, the rate achieved is consistent with that of other published surveys. It must also be borne in mind that the respondents in this study are likely to be almost exclusively practitioners in secondary or tertiary centres and hence treating cases which are likely refractory to the more conservative treatments of primary care. It is impossible to be sure however of the threshold of referral employed in general practice.

It is recognised that some patients may seek short-term improvement to improve performance for a specific purpose, accepting the risk of deterioration in the longer term.¹³ Nevertheless the penetrance of the latest evidence remains poor.⁴¹ We observe with interest that UK specialists continue to use corticosteroid injections in conjunction with other traditional treatments for tennis elbow, including physiotherapy and orthotic bracing. A significant proportion of specialists are now using PRP injections.

What are the new findings?

- ▶ Corticosteroid injections in tennis elbow may be effective in the short term but over longer periods their effects may be deleterious. We observe with interest that UK upper limb surgical specialists continue to use corticosteroid injections on a frequent basis.
- ▶ A proportion of specialists use platelet-rich plasma (PRP) injections; there is however a paucity of randomised controlled trials examining this therapy.
- ▶ The use of other injectable agents such as hyaluronic acid and botulinum toxin remains low, in keeping with the limited evidence base.

How might it impact on clinical practice in the near future?

- ▶ As the penetrance of evidence relating to corticosteroid injection therapy for tennis elbow remains low, further implementation (knowledge translation) effort should be directed towards increasing the uptake of evidence.
- ▶ PRP use is prevalent; even if evidence for this is limited, our study highlights a further education opportunity.

In summary, given the apparent discrepancy between evidence and self-reported clinical practice, we recommend that major specialist societies develop clinical guidelines. To assist in their application patient education is critical and should include references to the evidence base. The concomitant development of leaflets and web-based material would be a useful adjunct in this endeavour.

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Contributors AGT substantially contributed to the conception and design of the study, acquisition of the data, analysis and interpretation of the data, drafting and revising of the manuscript and approval of the final version. SJB and NSB substantially contributed to the analysis and interpretation of the data, drafting and revising of the manuscript and approval of the final version. AAT and DIC substantially contributed to the conception and design of the study, analysis and interpretation of the data, drafting and revising of the manuscript and approval of the final version.

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