On the treatment of tennis elbow. Effectiveness and prognostics of braces and physical therapy
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Chapter

Introduction
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Tennis elbow from a historical perspective

Since the first description of tennis elbow by Runge, in 1873, the entity has gained itself a place in, medical, society. Runge described the painful and limiting condition as ‘schreibekrampf’ or ‘writer’s cramp’ referring to the population in which he mainly saw the entity. Approximately one decennium after Runge, the condition was introduced in Anglo-Saxon literature by Henry Morris. He described it as rider’s sprain in 1882 and subsequently linked the condition to tennis and introduced the term ‘Lawn tennis elbow’. Since then, the complaint has been described as such extensively in medical literature, though not leading to uniformity concerning neither pathogenesis nor treatment strategy since.

The British orthopaedic surgeon, George Percival Mills, stated in 1929 that there was “probably nothing bringing the surgical profession into greater discredit than the inability to cure tennis elbow”. He bemoaned the situation where osteopaths and sports trainers manipulated the elbow and patients reported miraculous cures which had been resistant to orthodox medical care. He suggested to neglect pathology and to consider what is really known clinically, meaning that he thought it was important to identify the optimal treatment in stead of looking for the mechanism.

An important goal of the presented thesis is to determine and to augment the current evidence on the effectiveness of treatment strategies for tennis elbow. In the Netherlands, the current policy on tennis elbow is to consider its self-limiting nature. The guideline ‘epicondylitis’ of the Dutch Association of General Practice outlines that neither physical therapy nor the application of orthotic devices have proven itself to be of supplementary value. This statement is based on lack of sufficient evidence on the effectiveness of both interventions. This is supported by two recent systematic reviews on effectiveness of both orthotic devices and physical therapy as treatment strategies for tennis elbow. Thence, general practitioners are advised to await the natural course of the injury. Naturally, not all patients will be satisfied by their physician’s advice and will request an active treatment. Therefore, both physical therapy and orthotic devices, mainly braces, are still prescribed quite often in primary care.

Clinical aspects

‘Tennis elbow’ or lateral epicondylitis, is characterised by pain over the lateral epicondyle of the humerus, which is aggravated with resisted dorsiflexion of the wrist. It is frequently seen in medical care with an incidence in general practice of approximately 4-7 per 1000 patients per year and with an annual incidence of 1-3% in the general population. The complaints might results in sick leave, which in the Netherlands occurs in approximately 10% of the patients.
The natural history of the complaint is however mild, knowing that untreated the complaint will usually resolve within six months to two years.\textsuperscript{8,11,12} Besides the expectant policy, several treatment options are available,\textsuperscript{13} including corticosteroid injections, orthotic devices, surgery, and physiotherapeutic modalities such as stretching exercises, ultrasound, laser, massage, electrotherapy and manipulations.

Concerning treatment of the complaint, no uniform strategy can be identified. None of the mentioned strategies has proven to be superior when compared to the other. Lack of sufficient trials is the main reason for this lack of uniformity. Despite the fact that effectiveness has not been proven, physical therapy and braces are widely applied strategies.\textsuperscript{4,7,14} Thence, a randomised clinical trial was started in 1999, comparing brace treatment with a physical therapy regimen and the combination of both. In addition, a relatively unknown therapeutic strategy, consisting of manipulation of the wrist, was tested in a pilot study setting.

**Aims of the thesis**

Since the first description of tennis elbow in medical literature, the number of publications on the topic has been overwhelming. However, as of yet, no optimal treatment strategy for the entity has been identified. Following the systematic reviews concluding insufficient evidence on effectiveness of tennis elbow treatments was present, the primary aim of this thesis was to compare the effectiveness of three, frequently described, treatment strategies for lateral epicondylitis. This was tried to be accomplished by means of a sufficiently powered randomised clinical trial. In addition, a cost-effectiveness analysis was performed, focusing on the costs of the studied strategies in contrast to its effects on improvement in patients' complaints. Third goal of the thesis was to study the predictive value of the extensor grip test for effectiveness of brace treatment and, in addition, to study the predictive value of ultrasound entities on effectiveness of all three compared treatments. The fourth goal was to study the effect of manipulation of the wrist for patients with tennis elbow complaints.

Integrating all parts of this thesis, valuable evidence was retrieved which will hopefully be helpful in identifying the optimal treatment for tennis elbow complaints.
Reference List

10. Allander E. Prevalence, incidence, and remission rates of some common rheumatic diseases or syndromes. Scand J Rheumatol 1974;3:145-53