ABSTRACT

Purpose. To survey the practice of orthopaedic consultants in the Greater London area for treating Achilles tendon ruptures.

Methods. 221 orthopaedic consultants working in 28 hospitals within the Greater London area were identified. A questionnaire regarding conservative treatment for acute Achilles tendon ruptures was sent. The choice of immobilisation, the period of immobilisation, the time to weight bearing, the use of heel raises, and the use of diagnostic ultrasonography were enquired about.

Results. 62 of 86 respondents treated Achilles tendon ruptures conservatively by below-knee casts (n=51), above-knee casts (n=5), or functional braces (n=6). The most common immobilisation regimen (n=7) was to keep the foot in a sequence of an equinus position, a semi-equinus position, and a neutral position (3 weeks in each position). After cast removal, 45 of respondents preferred to use a heel raise for a median duration of 4 (range, 2–36) weeks. Respectively for foot and ankle specialists (n=24) and other orthopaedic specialists (n=38), the median immobilisation period prescribed was 8 (range, 3–13) and 9 (range, 6–36) weeks, respectively (p=0.625), whereas the median time to weight bearing prescribed was 6 (range, 0–9) and 6 (range, 0–12) weeks, respectively (p=0.402).

Conclusion. Functional bracing was not as widely used as below-knee cast immobilisation. There was no consensus on the optimal immobilisation regimen.

Key words: Achilles tendon; disease management; questionnaires; tendon injuries

INTRODUCTION

Achilles tendon rupture is usually associated with sporting activity and occurs more frequently in males than females. 1 It can be treated surgically (direct suture repair) and conservatively (immobilisation of the ankle joint in a plantar flexed position); both methods achieve comparable outcome. 2–4

For conservative treatment, there is no consensus on the use of above- or below-knee casts, the
duration of immobilisation, and the time to weight bearing. Above-knee casts can prevent movement of the tendon by defunctioning the action of the gastrocnemius. In a cadaveric study, the effect of the knee position on the apposition of the ruptured Achilles tendon ends was not significant when the ankle was maintained in maximal plantar flexion, and thus above-knee casts were considered unnecessary. The re-rupture rate can be decreased from as high as 35% to 7% by increasing the immobilisation period from 8 to 12 weeks, as most re-ruptures occur within the first few weeks of cast removal. The re-rupture rates have been reported to be 5% after using a plaster cast or the Sheffield splint, but can be as high as 17% after plaster casting and as low as 0% after functional bracing. We surveyed the practice of orthopaedic consultants in the Greater London area for treating Achilles tendon ruptures.

MATERIALS AND METHODS

A questionnaire regarding conservative treatment for acute Achilles tendon ruptures was designed. The choice of immobilisation, the period of immobilisation, the time to weight bearing, the use of heel raises, and the use of diagnostic ultrasonography were enquired about. 221 orthopaedic consultants working in 28 hospitals within the Greater London area were identified through the National Health Service and the Department of Health websites and double-checked with medical staff and/or secretaries of the hospitals via telephone. The questionnaires were mailed in June 2010. A follow-up electronic version of the questionnaire was sent via email 2 months later. The Mann-Whitney U Test was used to compare continuous data, and the Fisher’s Exact test for categorical data.

RESULTS

90 (41%) of the 221 orthopaedic consultants responded. Four of the respondents who had never managed Achilles tendon injuries were excluded. Of the remaining 86 respondents, 24 treated Achilles tendon ruptures operatively and 62 did so conservatively by below-knee casts (n=51), above-knee casts (n=5), or functional braces (n=6).

For below-knee cast immobilisation, the most common regimen (n=7) was to keep the foot in a sequence of an equinus position, a semi-equinus position, and a neutral position (3 weeks in each position), whereas the second most common regimen was to keep the foot in the corresponding positions for 4, 4, and 2 weeks. For above-knee cast immobilisation, all 5 respondents used different regimens. For functional bracing, the most common regimen (n=2) was to keep the foot in an Aircast boot for 8 weeks, with a wedge removed every 2 weeks. After cast removal, 45 of respondents preferred to use a heel raise for a median duration of 4 (range, 2–36) weeks.

Diagnostic ultrasonography was never used by 26 respondents, always used by 5, and sometimes used by 31. 14 of them gave their reasons as diagnostic uncertainty (n=7) and demonstration of tendon apposition in plantar flexion (n=7).

Respectively for foot and ankle specialists (n=24) and other orthopaedic specialists (n=38), 75% and 87% preferred below-knee cast immobilisation (p=0.31), 12.5% and 5% preferred above-knee cast immobilisation (p=0.37), and 12.5% and 8% preferred functional bracing (p=0.66). The median immobilisation period prescribed was 8 (range, 3–13) and 9 (range, 6–36) weeks, respectively (p=0.625). The median time to weight bearing prescribed was 6 (range, 0–9) and 6 (range, 0–12) weeks, respectively (p=0.402).

DISCUSSION

The common regimen for conservative treatment of Achilles tendon ruptures was immobilisation of the foot and ankle joints in a sequence of a plantar flexion (equinus) position, a semi-equinus position, and a neutral position for a total of 8 to 12 weeks. Nonetheless, there is no consensus on the immobilisation period for each of the 3 positions. In the current study, most respondents preferred to prescribe below-knee cast immobilisation followed by heel raises after cast removal. This was also consistent with a postal questionnaire study on immobilisation following operative treatment. Problems resulting from prolonged cast immobilisation include joint stiffness, calf muscle atrophy, longer time off work, later return to sports, and poor patient compliance. Functional bracing is an alternative and enables variable foot and ankle immobilisation in a less intrusive manner. In the current study, <10% of respondents preferred to prescribe functional bracing. Plaster casts may be cheaper and more readily available, but the costs of multiple outpatient visits and the time of the technician for cast immobilisation should also be considered. In addition, above-knee cast immobilisation results in poorer compliance and patient satisfaction.
Ultrasonography is reliable in the diagnosis of Achilles tendon injuries.\textsuperscript{17} Up to 20\% of acute Achilles tendon ruptures can be missed by the first attending medical officer,\textsuperscript{12,15} although clinical evaluation by orthopaedic specialists can achieve sensitivity of up to 96\% and specificity of up to 93\%\textsuperscript{18}. In the current study, <10\% of respondents routinely used ultrasonography for diagnosis.

Operative management for Achilles tendon rupture was beyond the scope of this questionnaire. Conservative management is increasingly popular, as operative repair offers no advantage.\textsuperscript{19} Further multicentre, randomised, controlled trials are required to demonstrate the relative benefits of one regimen as opposed to another. The current postal questionnaire survey revealed some trends in practice that can guide development of treatment protocols.

**DISCLOSURE**

No conflicts of interest were declared by the authors.