

ABSTRACT

International multispecialty consensus on how to image, define, and grade ultrasound imaging features of first metatarsophalangeal joint osteoarthritis: A Delphi consensus study

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The objective of this research was to adopt a Delphi study design to reach consensus concerning which ultrasound imaging features should be assessed and graded, and what ultrasound imaging procedure should be performed when examining osteoarthritic change in the first metatarsophalangeal joint. An online Delphi study was conducted over four iterative rounds with 16 expert health professionals. Items were scored from 0-100 (0 = not at all important; 100 = extremely important). Consensus was defined based upon items receiving $\geq 70\%$ of acceptance [1]. Items receiving $\leq 50\%$ were rejected. Items considered ambiguous (median 51% - 69% of acceptance) were assessed in an additional round [2]. A final round determined the content validity of items through calculation of the content validity ratio and content validity index [3]. Sixteen items were deemed essential and seven items non-essential. Items deemed essential to assess included osteophytes graded dichotomously, cartilage damage graded continuously, synovitis and joint space narrowing graded on a semiquantitative scale. The panel deemed essential that the first metatarsophalangeal joint start in its neutral position then move through range of motion during scanning for both dorsal and plantar scan, orientating the probe in longitudinal and in transverse aspects, whilst using first metatarsal head and proximal phalanx as anatomical landmarks. A supine body position was only deemed essential for a dorsal scan and a neutral foot/ankle position was only rated essential for a plantar scan. The content validity index of the essential items was 0.19. The consensus exercise has identified essential components the ultrasound imaging acquisition procedure should encompass when examining first metatarsophalangeal joint osteoarthritis. The outcomes of the Delphi study will inform future studies into the methodological development of an ultrasound imaging atlas to grade the degree of osteoarthritic change in the first metatarsophalangeal joint.

References

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