



ORAL PRESENTATION

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# Frequent discordance between clinical and musculoskeletal ultrasound examinations of foot disease in juvenile idiopathic arthritis observed in the multidisciplinary setting

Gordon J Hendry<sup>1\*</sup>, Martijn PM Steultjens<sup>2</sup>, Janet Gardner-Medwin<sup>3</sup>, Jim Woodburn<sup>2</sup>, Debbie E Turner<sup>2</sup>

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## Background

Ultrasound has shown promise for detection of sub-clinical disease in JIA. This may be particularly beneficial for the foot and ankle joints, which are difficult to examine in children. Early detection of sub-clinical foot disease permits earlier intervention which may improve outcome. The aim of this study was to evaluate agreement between clinical and ultrasound examinations of foot disease in JIA.

## Methods

Thirty patients with JIA underwent clinical and US examination of 24 foot joints, 10 tendons and 6 peri-articular soft tissues. Each site was examined independently by a rheumatologist and a podiatrist for synovitis, and tenderness/swelling. At the same sites the sonographer examined independently for effusion, synovial hypertrophy, power Doppler signal (PS), tenosynovitis, or abnormal tendon thickening. Agreement was estimated using Cohen's unweighted kappa ( $\kappa$ ) ( $>0.4$  = moderate agreement) with associated 95% confidence intervals.

## Results

720 joints, 300 tendons and 180 soft tissue sites were assessed. Clinically detected synovitis, tenderness and swelling were recorded in 42 (5.8%), 78 (10.8%) and 73 (10.1%) joints respectively. US-detected effusions, synovial hypertrophy and PS were recorded in 88 (12.2%), 47 (6.5%) and 12 (1.7%) joints. Tenderness and swelling were recorded in 29 (9.7%) and 16 (5.3%)

tendons and 28 (15.6%) and 9 (5%) soft tissues. US-detected tenosynovitis and PS were detected in 7 (2.3%) and 6 (2%) tendons. Abnormal thickening of the plantar fascia origin and Achilles tendon insertion were detected at a frequency of 4/60 (6.7%) and 1/60 (1.7%), and 3/60 (5%) effusions were recorded at the retro-calcaneal bursa. Subclinical foot disease was discovered in 52 (7.2%) joints, 5 (1.6%) tendons and 4 (2.2%) soft tissue sites. Agreement was consistently less than moderate ( $\kappa < 0.4$ ) for each clinical and US interaction. There was moderate agreement between the rheumatologist and podiatrist for active synovitis versus joint swelling ( $\kappa = 0.52$ ).

## Conclusions

There is frequent discordance between clinical and US assessments of foot disease in JIA. Subclinical foot disease appears common; however clinical examination also detected features of active disease in structures that were recorded as normal on US. These findings suggest US may be a useful tool to aid clinical examination of the foot in JIA patients.

## Author details

<sup>1</sup>School of Biomedical and Health Sciences, University of Western Sydney, Sydney, Locked Bag 1797, Australia. <sup>2</sup>Glasgow Caledonian University, Glasgow, G4 0BA, UK. <sup>3</sup>University of Glasgow, Glasgow, G12 8QQ, UK.

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\* Correspondence: gordon.hendry@gcu.ac.uk

<sup>1</sup>School of Biomedical and Health Sciences, University of Western Sydney, Sydney, Locked Bag 1797, Australia

Full list of author information is available at the end of the article