Musculoskeletal ultrasonography in Europe: results of a rheumatologist-based survey at a EULAR meeting

R. J. Wakefield, E. Goh, P. G. Conaghan, Z. Karim and P. Emery

Objective. To document the practice of musculoskeletal ultrasound (US) by a sample of European rheumatologists attending an annual general meeting of the European League Against Rheumatism (EULAR).

Methods. English-language questionnaires were distributed to 180 randomly selected participants attending imaging-related sessions at the XIV EULAR meeting in Glasgow, UK, in 1999. The questionnaire was divided into four sections: Demographics, Education and Training, Current Practice, and Equipment.

Results. Ninety-two rheumatologists responded, representing 74 centres from 19 European countries. Seventy-eight (85%) of the respondents either already used US in their clinical practice or would like to use it in the future. Thirty-seven (40%) respondents performed US within their own department. Few had received training at undergraduate level and most had learned informally or by attending courses. Scans were considered most useful for large joints and ligaments/tendons. Only 28 (30%) respondents valued US for guided injections.

Conclusions. This study, although containing an element of selection bias, confirms a great interest in musculoskeletal US by rheumatologists across Europe and a demand which is likely to increase. The reported variation in training and practice between countries suggests a need for standardized training guidelines.

KEY WORDS: Europe, Musculoskeletal ultrasound, Education, Training, Practice.
of the meeting. The refusal rate was not recorded. The percentage of respondents completing each section was 100% for Demographics, 96% for Education and Training, 94% for Current Practice and 20% for Equipment.

Demographics

The 92 respondents represented 74 individual rheumatology centres from 19 European countries. The greatest numbers of respondents/country were: UK, 28 (from 24 centres); Germany, 7 (4); Italy, 6 (3); Portugal, 6 (3); Norway, 5 (4); The Netherlands, 5 (5); Denmark, 5 (5); and Sweden, 3 (2).

Thirty-seven out of 92 (40%) respondents from 29/74 (40%) centres performed US within their own rheumatology department. Of the 55/92 (60%) respondents not performing US, 25/55 (45%) considered their current radiology service was already adequate, 21/55 (38%) felt the equipment too expensive, 21/55 (38%) felt the clinician did not have enough time to perform scans, 11/55 (20%) were already in the process of acquiring US facilities and 41/55 (75%) stated that they would like to have facilities in the future.

Rheumatology centres performing their own US had done so for approximately 6 yr (range 0.1–15 yr). Whilst on average five specialists practised within each individual rheumatology department, only one was considered trained in US. The mean waiting time for an US scan by a radiologist was 3.7 weeks/centre (range 0–20 weeks).

Education and training

Eleven out of 88 (13%) respondents trained in general US at medical school (six of the 11 respondents were from Germany). Four of these were taught specifically about musculoskeletal US (two from Germany, one from Turkey, one from Poland). All were at least 5 yr post-qualification, and three had been qualified for more than 10 yr. Only 1/28 (4%) UK respondents had received any general US experience at medical school and none had received any training in musculoskeletal US. Eleven of 88 (13%) had attended a EULAR US course and 29/88 (33%) had attended other US courses. Forty-five out of 88 (51%) had received informal training from experienced colleagues; of these, 44% had received training from radiologists, 54% from rheumatologists and 2% from orthopaedic surgeons.

Current practice

The reasons for respondents performing US scans could be divided into clinical (80%) and research (20%) indications. Of those scans performed for clinical reasons, 84% were for diagnostic purposes, 12% for US-guided injections and 4% other reasons, e.g. disease monitoring. Ultrasound was considered by the respondents to be most useful in the following joints: shoulder (73% of respondents), hips (59%), knees (57%), wrist (45%), ankles (39%), elbows (36%), metacarpophalangeal joints (24%), proximal interphalangeal joints (23%), metatarsophalangeal joints (22%) and distal interphalangeal joints (13%). With respect to soft tissue pathology, it was thought most useful for detecting tendon/ligament abnormalities (70%), bursae (58%) and plantar fascia (25%). Only 28/92 (30%) of respondents found US useful for guided aspirations/injections, of which the hip (40%), shoulder (33%) and knee (17%) were most common.

Equipment

Only 18 respondents fully completed this section. Of these, 11 (61%) owned their own equipment, six (33%) shared with radiology and one (6%) had theirs on loan from a company. Forty-seven out of 92 (51%) respondents from 20/74 (27%) centres routinely archived their images, the majority of these (75%) using photographic printers for image storage.

Discussion

This is the first published survey examining the use of musculoskeletal ultrasound across Europe. The majority of respondents expressed an interest in US, evident by the fact that 78/92 (85%) had either already used it or would like to perform it in the future. The study has highlighted a number of interesting points with regard to training and practice.

Of those centres where US was performed by rheumatologists, on average only one rheumatologist was fully trained compared with an average of five rheumatology specialists within each department. This may reflect the infancy of the area, the number/centre being likely to increase with time, or may suggest a preference for a single rheumatologist from each department to provide the service. Most training, in either general or musculoskeletal US, had been provided at postgraduate level, mostly informally by colleagues or by a formal training course. The provision of training at the undergraduate level was limited to a few countries. It could be argued that training is better delivered at the postgraduate level at the time of specialization, but perhaps more limited training should be delivered earlier, given the number of joint conditions managed by non-rheumatologists.

A major advantage of rheumatologists performing ultrasound themselves is their potential ability to perform scans immediately in clinic, thus enabling rapid clinical decisions with the avoidance of additional hospital visits. Although we did not formally assess the waiting time for a rheumatologist to perform a scan, there was a wide range of waiting times for scans by radiologists, ranging from 0 to 20 weeks (mean 3.7 weeks). The longer waiting time may be more acceptable in some circumstances but is less satisfactory for others, e.g. the determination of synovitis, which may alter immediate treatment, such as starting or changing doses of a disease-modifying agent.
Most scans were performed on the larger joints, e.g. shoulder, hip and knee, where clinical examination is considered perhaps less reliable [5–7]. The small joints were scanned less commonly, which may relate either to the relative infancy of the area at the time of the study or to the lack of availability of the specialized equipment required for examination (e.g. smaller, high-frequency transducers). These findings contrast with the results of a recent study by our own department, in which 63% of scans were performed on the wrists and small joints of the hands [8]. It was interesting that the shoulder was considered the most desirable joint to scan despite the fact it is probably the most difficult to scan and is probably associated with the greatest learning curve. Surprisingly, only 30% of respondents found US useful for guided aspirations/injections, which was considered most useful for the hip, shoulder and knee. This may again reflect limited data in this area at the time of the study, although recent reports have highlighted its potential value [9–11].

There were a number of limitations/potential biases to this study. First, we acknowledge that this was not a comprehensive European study and included only English-speakers, and therefore may not be representative of Europe as a whole. Secondly, the undocumented refusal rate, the low response rate and the fact that the questionnaire was distributed at image-related sessions is likely to have selected a biased group of rheumatologists already interested in imaging. Thirdly, there may have been over-representation of certain countries, such as the UK, due to the location of the meeting. Finally, there were not enough respondents to compare different countries adequately, although in certain areas, such as undergraduate training, there did appear to be wide variation.

This study confirms for the first time that there is widespread interest in musculoskeletal US in rheumatology in a number of countries across Europe, many rheumatologists either performing or intending to perform US in the future. Although this study was performed in 1999, we believe it provides valuable baseline data for planning future training programmes and comparing with results of future studies. Indeed, since this study, increasing interest in US has been demonstrated by oversubscription of the EULAR/ACR sonography workshops, and evidence is emerging that indicates the great impact that US can have on the diagnosis and management of rheumatic conditions [8]. Preliminary guidelines for training have already been published [12], but more comprehensive guidelines will be necessary to standardize training across Europe [13].

Acknowledgements

The authors would like to thank the members of the Leeds Early Arthritis Project (LEAP), who helped distribute the questionnaire during the conference, Dynamic Imaging, Livingstone, UK, who helped support the project financially, and all the respondents who completed the questionnaire.

References