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A study of the experiences of participants following attendance at a workshop on methods to prevent or reduce work-related musculoskeletal disorders amongst sonographers

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ABSTRACT

A growing number of sonographers are being affected by pain and disability associated with their working practices. Many of these individuals are scanning whilst in considerable discomfort, or having to take sick leave when the pain makes scanning impossible. Severe cases will result in sonographers being unable to scan, and forced into a change of career, or early retirement.

In order to help address this problem it was decided in June 2009 to host a workshop for sonographers at the University of the West of England, to introduce participants to a variety of ideas and techniques which could potentially prevent or reduce musculoskeletal disorders associated with working practices.

Following the overwhelming popularity of this first session, three further workshops were organized. A total of 96 students have attended these four workshops, and all participants have been asked to complete detailed evaluation questionnaires. In order to determine any long-term benefits of the workshops, participants were also asked for their permission to be followed up at six week and twelve week intervals after attendance. A total of 23 participants were telephoned six weeks after attending the workshop and ten were telephoned at twelve weeks.

Results demonstrated that the workshop was extremely beneficial for the majority who attended. The positive effects lasted for several weeks following the event, however, after three months the majority felt they needed additional reinforcement of the information, ideas and techniques learnt during the original workshop.

Introduction

Work-related musculoskeletal disorder (WRMSD) is a problem affecting growing numbers of sonographers.[1–3] The nature of the work, which involves repetitive fine movements using the upper limbs, whilst concentrating on images displayed on a screen, may result in damage to joints, muscles and tendons.[4,5] The condition often leads to considerable pain for the individuals concerned, and problems for departments struggling to cope with increasing workloads.[6,7] The incidence of WRMSD amongst sonographers is increasing rapidly.[2,3,6,7] A number of causative factors have been proposed as reasons for this alarming rise[8,9] but chief among them appear to be increasing workloads and lack of suitable breaks during the day.[6,7,10] Growing numbers of referrals for ultrasound scans and targets to reduce waiting lists, puts constant pressure on overstretched departments to increase throughput of patients.[6,8,11] Often no extra funding is available to recruit additional staff, and even when there is, a shortage of experienced sonographers results in little, if any, response to attempts to recruit new staff.[12] One study[13] suggested that sonographers who perform more than 100 scans a month are at risk of WRMSD. As the majority of sonographers perform at least three times this figure, it is inevitable that problems are occurring on such a large scale.[14]

Whilst these factors are important and need to be addressed, there are also ways in which practitioners can think about their own practice and make personal changes.[11,15] In order to facilitate this process, the University of the West of England, decided to introduce into the postgraduate Medical Ultrasound programme, workshops for students to raise the awareness of WRMSDs and to demonstrate different approaches. It is particularly important for students embarking on a future new career, to be aware of the possible harm they can do to their bodies by incorrect scanning practice. If they can be taught methods of good practice to prevent bad habits forming, potentially they may be less likely to suffer

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from problems later in their career.[11,15] It is also apparent amongst sonographers who have scanned for a number of years, that not all of them do suffer from WRMSDs, which suggests that they, consciously or unconsciously, employ techniques or scanning practices which reduce the onset of problems.[15] There may well be benefits to be gained therefore from the sharing of good practice amongst sonographers

Workshops were introduced into the postgraduate clinical practice modules,[14] to raise the awareness of these students, of the potential harm they could be doing to their bodies if they did not establish good working practices at an early stage in their careers, and to help them to develop new approaches to prevent problems occurring. Feedback from these workshops was positive, and requests for additional workshops from these students' departments began to appear, as it soon became apparent that qualified sonographers were also interested in learning about how they could benefit from information on techniques which could potentially help to prevent or reduce the causes of WRMSD. As a result, a workshop was set up in June 2009 where 28 sonographers were invited to participate in a day of lectures, discussions and demonstrations. Numbers of participants were limited to a maximum of 28 to ensure all had opportunities for individual advice. This workshop was oversubscribed, and three further sessions were organized during 2009 and 2010.

The workshops

The workshops were designed to give sonographers the opportunity to discuss problems, share examples of good practice, and participate in interactive sessions with a range of specialists demonstrating various methods which could potentially help with the problem of WRMSDs. Sonographers were introduced to a variety of techniques to help to overcome the stress and damage to the body caused by repetitive movements. These techniques included ergonomics advice from a physiotherapist; lessons from Alexander Technique teachers; information from a Health and Safety Executive representative on legislation to support sonographers.

The workshop began with the participants discussing what specific WRMSD problems were being experienced. Individuals identified a range of problems, including pain or discomfort in the shoulders, neck, wrist, hand, elbow, thoracic and lumbar spine, plus headaches. The discussion then centred around the reasons for the growing number of MS problems amongst sonographers. Individuals who had been scanning for many years expressed concern that although they had been scanning for long periods, it was only during the last decade that they had noticed problems, whilst others who had only qualified within the past ten years, were already experiencing problems. This suggests that changing working practices are leading to an escalation of WRMSD problems. A variety of possible aggravating factors were highlighted, including:

- Lack of breaks during the working day;
- Too many scans to perform in a day and too few staff;
- Inadequate staffing levels for the volume of work;
- Management targets leading to pressure on the workforce;
- Inadequate length of time allowed for each scan;
- Increasing numbers of patients with large body mass index (BMI);
- Increasing numbers of TV scans without appropriate equipment, resulting in a lack of support for the arm;
- Increasing numbers of nuchal translucency scans requiring long periods of fine adjustment of the transducer;
- Staff sickness due to WRMSD, putting pressure on remaining staff;
- Different sonographers using the same room during the day resulting in the requirement to continually readjust the equipment, couch and chair height. Often work pressures resulted in there being insufficient time for this readjustment;
- Lack of variety of work during the day resulting in a series of identical scans being performed.

Participants were asked to identify what, if any, help or guidance they had been given in the workplace in relation to WRMSDs and scanning practice. A number of points were identified:

- Exercises recommended and given in the form of an exercise sheet or poster;
- Advice on seating and positioning;
- Assessments of the working environments by the occupational health department with recommendations on seat and couch height;
- New equipment, such as saddle chairs, purchased;
- Some superintendents had tried to reduce workloads and/or mix the caseload to provide more variety in the type of scans performed;
- New ergonomically designed ultrasound equipment purchased;
- One sonographer was currently trialing a new covering for the transducer to enhance grip;
- Some had tried using a strap on the scanning forearm to help to support the transducer;
- One person had tried blue tooth operation of equipment controls;
- Voice activated ultrasound equipment controls;
- Limiting the number of repeat scans offered to patients where imaging was suboptimal due to increased BMI.

Methodology

Following each of the four workshops, evaluation forms were given to each participant to establish how useful the information and ideas had been. In addition to providing personal background information, participants were asked for comments on their experiences of the sessions, and to evaluate various aspects of the workshop using a Likert scale.[16] The Likert scale is a refined measurement scale requiring respondents to give opinions on a series of statements. The results were analysed and recorded (see Tables 1 and 2).

To find out whether there were any long-term benefits of the workshop, it was decided to follow up a percentage of the participants to determine what, if any, of the principles from the day were particularly useful, and how much of what they learnt, they were still using several weeks later. During the four workshops a total of twenty three participants volunteered to participate in a telephone interview six weeks after the event. It was not felt to be appropriate to contact all participants without their permission, however, all participants were invited to volunteer to participate in these interviews. Whilst this may potentially have introduced an element of bias into the findings, because the group was self-selecting, it was not considered that this would significantly affect the findings as the objective was to obtain sample experiences following the workshop, rather than evaluate their views of the workshop. Ethics approval was obtained for the research from the Faculty of Health and Life Sciences, Ethics Committee at the University of the West of England, Bristol. These volunteers were all telephoned by the workshop leader, and the conversations recorded with participant consent. Anonymity was guaranteed for the interviews, and complete security of the results was assured and established. The interviews were semi-structured, with a series of questions put to