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Impact of COVID-19 on Work-Related Musculoskeletal Disorders for Cardiac Sonographers



To the Editor:

Work-related musculoskeletal disorders (WRMSDs), defined as painful injuries that involve the muscles, tendons, nerves, and ligaments secondary to repetitive stress from work-related activities, are highly prevalent among cardiac sonographers, with over 85% reporting symptoms.^{1,2} While the etiology is multifactorial, poor ergonomics related to suboptimal postural alignment during scanning can promote the incidence of WRMSDs. Factors related to portable examinations, such as transporting equipment and performing studies in rooms not designed for echocardiography, are also likely contributors.³

The American Society of Echocardiography has published recommendations to guide echocardiography workflow during the COVID-19 pandemic.⁴ Preferentially performing portable echocardiograms was advocated to reduce the potential risks of COVID-19 transmission associated with transporting patients within hospital facilities. Many facilities (including our own) responded by implementing a “portable first” approach to echocardiography in hospitalized patients. After 4 months’ experience with this approach, we sought to investigate the relationship of these changes with WRMSDs.

We designed and distributed a WRMSD survey to 80 cardiac sonographers working at the Atrium Health Sanger Heart & Vascular Institute. The rate of response was 85% (81% female), with 74% reporting having experienced WRMSDs in the prior 12 months. Roughly 50% reported pain on most days; 22% reported worsening of symptoms during the COVID-19 pandemic. Many (56%) reported taking less time to optimize ergonomics during the pandemic, possibly in haste to mitigate transmission risk and/or fatigue from performing predominantly portable studies. We acknowledge the potential for bias in the responses to the survey as a limitation of this study as we lack a pre-COVID survey to confirm a true change over time.

In response to the survey, our laboratory instituted a comprehensive program to address WRMSDs. This includes an updated ergonomics policy, ergonomic-specific education with didactic lectures and self-study modules, signage to promote awareness in all laboratories, workplace ergonomic evaluations, updating of equipment to ensure optimized ergonomics, appointment of local sonographer safety champions, and WRMSD prevention through a regular exercise and stretching program specifically designed for sonographers. We also collaborated with our regional sonography training program to develop and implement new-hire training and ergonomic competency evaluations.

In addition, we no longer mandate that all studies be conducted portably. Instead, we ensure appropriate social distancing and other

safety protocols for all patients who are transported to our laboratory. All echocardiography requests for patients with confirmed or suspected COVID-19 must be discussed by the ordering clinician and physician echocardiographer of the day. If confirmed to be necessary, such studies are performed portably; the sonographer performs an abbreviated problem-focused protocol to minimize scanning time. Comparable protocols have been shown to successfully reduce scan time without negatively impacting study quality.⁵

The impact of WRMSDs can be profound. Experiencing pain clearly has a negative impact on quality of life. Sonographers often seek medical and surgical care for WRMSDs, which leads to absenteeism and increased medical expenses. It is estimated that WRMSDs result in over \$120 billion in direct and indirect costs to employers per year. While changes in protocols during the COVID-19 pandemic were instituted in efforts to provide protection to patients and staff, the unforeseen consequence of promoting WRMSDs has been experienced in our laboratory. We are working diligently to address this, as outlined herein.

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