Work related musculoskeletal disorders among surgeons

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Abstract. The aim of the study was to review the current literature in order to know various measurement tools used, ergonomic risk factors and other finding related to work related musculoskeletal disorders among surgeons. Methodology: A systematic review was done using MEDLINE by the keywords "surgeons", "ergonomics" and "musculoskeletal disorders". All the articles were reviewed by two reviewers and studies which were not adequate and inappropriate were excluded. Study design, type of data collection, assessment tools and outcomes obtained in the respective study were noted. Reported surgical procedures included laproscopy, pediatric surgery, dermatological surgery, ENT and endoscopy. Results confirmed a strong association between musculoskeletal symptoms and the number of laparoscopies performed. Very few surgeons opted for treating their symptoms and the treatment methods largely included medications and physiotherapy.

Keywords. Surgeons, Ergonomics, WRMSD, MEDLINE

1. Introduction

Surgeons are a unique group of healthcare professionals who are at risk for developing work related musculoskeletal disorders (WRMSD). The diversity of operating skills for laparoscopic and endovascular procedures impose different physical demands on surgeons, who also work under time pressure. Among the healthcare professions, extensive research has been done on nurses, nurse assistants and patient care workers with a focus on lifting and back pain (Engkvist et al., 2001; Fujishiro et al., 2005). Very few studies have examined musculoskeletal symptoms among surgeons in various specialties (Szeto et al., 2009). As a compiled report on the impact of WRMSD among surgeons was lacking, a review of the literature studies was needed. The aim of this study was to review the measurement tools used, ergonomic risk factors and other finding regarding WRMSD in Surgeons.

2. Methods

A systematic review of the published literature was conducted to find out the ergonomic risk factors among the surgeons and suggested recommendations regarding prevention of WRMSD. The literature search was done using MEDLINE by the advanced search and articles were found using the keywords "surgeons", "ergonomics" and "musculoskeletal disorders". The limits were set for all the articles, published in the years from 1995 to 2013. A total of twenty seven articles were found and 10 studies were finally reviewed by two independent reviewers and studies which were not adequate and inappropriate were excluded. A final review was done based on inclusion and exclusion criteria and the articles which did not fit the criteria were excluded from the systematic review. The following features of the study were taken into review: study design, type of

data collection, assessment tools and outcomes obtained in the respective study.

3. Results & Discussion

Majority of the studies obtained were by survey methods. The most commonly used outcome measures were self reported questionnaires. The surgical procedures studied included laproscopy, pediatric surgery, vaginal surgery, spine surgery, dermatological surgery, ENT and endoscopy. A survey among over 600 colorectal surgeons who performed colonoscopy regularly and reported a high prevalence rate of ‘‘injuries’’ in the hands/fingers (n = 257), followed by the neck (n = 65) and back (n = 52) (Liberman et al., 2005). A study on 285 surgeons reported that over 80% reported experiencing discomfort in the neck, shoulders and back areas (Wauben et al., 2006). Results confirmed a strong association between musculoskeletal symptoms and the number of laparoscopies performed. Skilled laparoscopic surgeons had more pain than less skilled laparoscopic surgeons (Morandeira et al., 2012; Berguer et al., 2001). Symptoms in some group of surgeons, was more frequent after laparoscopy than after open procedures. Surgeons involved in surgical teaching were significantly more likely to report WRMSD. Female surgeons had more frequent and more severe WRMSD. The most commonly affected areas were in the neck, shoulder and upper back. Surgeons who were experienced and older often sought medical attention when compared to inexperienced and younger age surgeons (Szeto et al., 2009). Repetitive movements, static postures and forceful exertions were found to be the risk factors that contribute to musculoskeletal discomfort in the surgeons (Szeto et al., 2009). A high prevalence of WRMSD was reported among spine surgeon (Aeurbach et al., 2011). The coping strategies adopted by the surgeons were change in positions, limiting the number of surgeries per day, spreading the surgical dates throughout the week or limiting the total number of surgeries to avoid musculoskeletal symptoms. However, implementation of exercise programmes had a considerable impact in the pain and disability levels of surgeons (Mohseni-Bandpei MA et al., 2011).

4. Conclusion:

A high prevalence of WRMSD exists among the surgeons, especially those who perform procedures such as laproscopy, spinal and vaginal hysterectomy. Very few surgeons opted for treating their own symptoms and the treatment methods largely included medications and physiotherapy.