Questionnaire Based Survey of Musculoskeletal Dysfunction among General Surgeons of India

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Introduction

- Laparoscopic surgery increase ergonomic stress to surgeons
- Prevalence of MSDs is very high (~87- 100%)[1,2]
- Intraoperative muscle stress & physical workload during lap surgery may lead to development of MSDs among surgeons and least studied aspect of surgical procedure.

Aim

Questionnaire- based study to estimate the prevalence of MSDs among surgeons in India.

Methodology

- Study period : March 2021 - September 2022.
- Musculoskeletal Dysfunction questionnaire developed following standard guidelines and surveyed among >2000 general surgeons in India via Email/SMS/WhatsApp

The questionnaire design process had following steps :

Step 1 - Literature review

Step 2 - Constitution of Expert committee
(2 Surgeons +1 PMR/Physiology/Biostatics + 1 External surgeon as expert)

Step 3 - Synthesis of the literature review & questionnaire

Step 4 - Development of items

Step 5 - Content validation by expert

Step 6 - Pilot testing and validation

- Consistency of questionnaire was evaluated using its internal consistency, test-retest reliability, and inter-rater reliability respectively.
- Final questionnaire was circulated for survey.

Results

Response rate for questionnaire	**235/2000 (11.2 %)**
Prevalence of MSDs among Lap surgeons	**96%**
Male Surgeons	**91%**
Mean Age	**45.8 yrs**
Surgeons doing both Lap & Open (majority right handed)	**71 %**
Prexisting MSD in Surgeons	**50%**

Distribution of Musculoskeletal Symptoms	**N (%)**
Musculoskeletal previous history	119 (50.6)
• Back pain	80 (34.1)
• Neck pain	59 (25.1)
• Shoulder pain	43 (18.3)
• Hand/wrist (elbow+ wrist+carpal tunnel)	30 (12.8)
• Leg (hip+knee+ankle)	22 (9.4)

Treatment received for Musculoskeletal symptoms	**N (%)**
Medication	58 (24.7)
Physiotherapy	33 (14)
Surgery	2 (0.8)
None	157 (66.8)
Awareness about surgical ergonomics	**181 (77)**

Figure 1: Perception of cause of their Musculoskeletal symptoms

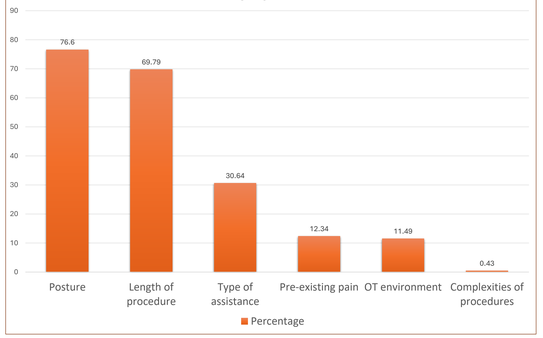


Figure 2: Physical activity

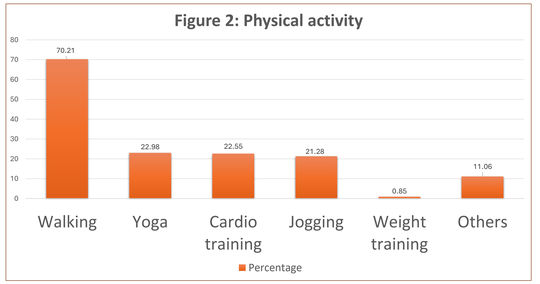
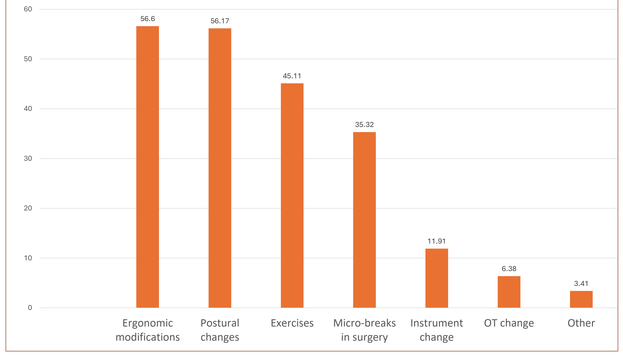


Figure 3: Behavioural change to decrease the problem



- Musculoskeletal symptoms increase with the percentage of laparoscopic work (p - 0.011).
- Pre-existing MSDs increases in severity (p - 0.002).
- Most frequent symptoms perceived were hand/wrist pain/stiffness, leg pain, neck pain, & back pain, a/w long duration of procedures.
- Most of surgeons neglect their symptoms.

Conclusion

MSDs is real occupational hazard among minimal access surgeons and is almost universally reported by all practicing surgeons. Directly proportional to amount of laparoscopic work and there is a worsening of preexisting MSD.

References

1. Yang L et al. Impact of Procedure Type, Case Duration, and Adjunctive Equipment on Surgeon Intraoperative Musculoskeletal Discomfort. J Am Coll Surg. 2020

2. Alleblas CCJ et al. Prevalence of Musculoskeletal Disorders Among Surgeons Performing Minimally Invasive Surgery. Ann Surg. 2017