Prevalence of Neck and Arm Pain in Non-Surgical Physicians At a Tertiary Academic Center

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Purpose

- Previous analysis found high prevalence (59.3%) of neck and upper extremity symptoms in surgeons at a tertiary academic hospital.
- This analysis of non-surgical physicians was designed to compare prevalence of neck and arm pain symptoms with surgical physicians.
- If specific associations are identified with neck and arm symptoms, these would guide quality initiatives for ergonomic and physical conditioning.
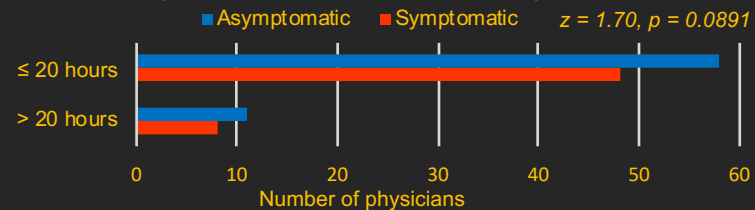
Methods and Study Design

- A survey was sent to non-surgical physicians to collect demographics, years practicing, height, and procedure rate.
- Four triage questions were asked on neck and upper extremity symptoms (arm or hand paresthesia, pain needing treatment, or acute-onset upper extremity weakness, or pain while performing medical procedures).
- Those with symptoms were asked further information on treatment.
- Results were analyzed using the Marascuilo procedure for comparison by specialty and z-tests to identify significant associations.
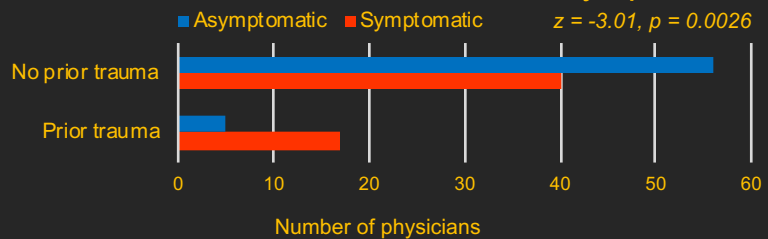
Results

- 118 physicians completed the survey with an overall 18.5% response rate.
- 73 men and 46 women responded, with 61 attendings and 57 trainees.
- 48.3% (n = 57) of respondents reported one or more symptoms.
- Participants who reported prior neck or arm trauma were more likely to report symptoms ($z = -3.01$, $p = 0.0026$).
- No significant correlation was found between prevalence of symptoms and rate of procedures ($z = 1.70$, $p = 0.0891$).
- Per Marascuilo procedure, no significant association between specialties and symptom prevalence was identified.
- Of those symptomatic, 71.9% sought treatment, and 33.3% reported modifying their environment because of symptoms.
- No significant association was found regarding symptoms between attendings and trainees ($z = -1.66$, $p = 0.0969$).
- No significant association found with sex ($z = 0.2796$, $p = 0.7795$).
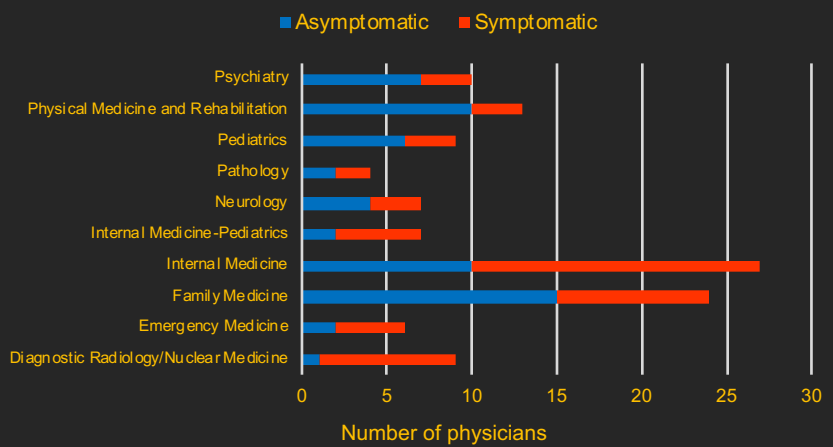- Only 6.8% of participants received any ergonomic training.

Weekly Procedure Time and Symptoms

z = 1.70, p = 0.0891 — Asymptomatic / Symptomatic; categories ≤ 20 hours, > 20 hours; x-axis Number of physicians.

Prior Trauma Association with Symptoms

z = -3.01, p = 0.0026 — Asymptomatic / Symptomatic; categories No prior trauma, Prior trauma; x-axis Number of physicians.

Symptoms by Specialty

Asymptomatic / Symptomatic; specialties: Psychiatry, Physical Medicine and Rehabilitation, Pediatrics, Pathology, Neurology, Internal Medicine-Pediatrics, Internal Medicine, Family Medicine, Emergency Medicine, Diagnostic Radiology/Nuclear Medicine; x-axis Number of physicians.

Limitations

- Individuals with symptoms may be more likely to respond to the survey.
- The sample size and limited response rate decreases the power of this study.
- Other potential factors not included in the survey include:
  - Poor ergonomics during documentation
  - Nature of injuries sustained prior to practicing medicine
  - Extracurricular activities (such as sports and exercise)
  - Overall active or sedentary lifestyles.
- Type of procedure or ergonomic training were not delineated.
- The rate of unspecified prior trauma confounds the association between physician duties and painful symptoms. Further investigation is necessary.

Conclusion

- Despite the limited power of this study, nearly half of respondents reported neck or upper extremity musculoskeletal or neurological symptoms.
- Of those symptomatic, 1/3 needed to change their environment for improved comfort, which may reveal poor workplace setup.
- Larger, multi-center studies are needed to determine the impact of years practicing, as this may have a larger effect than our study.
- Although the overall percentage of non-surgical physicians with neck and upper extremity symptoms is less than the previously surveyed surgeons, analysis demonstrates the need for improved physician ergonomics and conditioning.

Significance of Findings

- Literature on ergonomics for non-surgical physicians is scarce.
- This study provides awareness of common yet critically neglected musculoskeletal and neurological symptoms in non-surgical physicians.
- Prior trauma pain may be exacerbated by occupational ergonomics.
- Establishing optimal ergonomics with work duties, environmental modifications, and targeted exercise may improve career longevity and work satisfaction in physicians.