International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Prevalence of Neck Pain and Upper Limb Function in Laboratory Technicians of Ahmedabad City

Shivani Bhatt[1], Dr. Alpa Purohit[2]

[1]PG student, Physiotherapy Department, Ahmedabad Institute of Medical Sciences
[2]Principal, Physiotherapy Department, Ahmedabad Institute of Medical Sciences

ABSTRACT

Background: In the healthcare industry, medical laboratory testing plays a crucial role in the detection, diagnosis, and treatment of disease in patients. Medical laboratory technology is one of the most rapidly expanding health care fields. Medical laboratory technicians are a unique group of healthcare professionals who are at risk for developing work-related musculoskeletal symptoms. Laboratory procedures have highly repetitive movements of hands and arm and awkward posture. Laboratory technicians are reported to have high levels of strain in neck and shoulders, due to prolonged static loading, which leads to high prevalence of neck and shoulder pain. Today technological advancements people who work inside high tech laboratories to hazards they have previously not experienced such as tendonitis, carpal tunnel syndrome. Therefore, medical laboratories are forced to give attention to the issues of ergonomics to prevent disorders.

Aims: 1) To find prevalence of neck pain in laboratory technicians. 2)To find prevalence of upper limb functional disorders in laboratory technicians.

Materials and Method: A Neck-PainDisability-Questionnaire and Upper Extremity Functional Index will be used to estimate prevalence of neck pain and upper limb function in laboratory technicians.

Result and Conclusion: Neck Disability Index scale showed that 25% of the subjects have no disability, 60% of the subjects have mild disability,
12.5% of the subjects have moderate disability and 3% of the subjects had severe to complete disability. Upper Extremity Functional Index showed that 60% of the subjects have no disability, 22.5%of the subjects have mild disability,10.0% of the subjects have moderate disability and 7.5% of the subjects have severe disability.

Keywords: Neck pain, Neck Pain Disability Questionnaire, Upper Extremity Functional Index, Laboratory Technicians

Introduction

Musculoskeletal problems are faced by everyone in daily life. Most of the musculoskeletal pain is work or occupation related. Over a period of time due to increased hours of work and constant postural habits, work related musculoskeletal pain has evolved. Neck pain constitutes a large proportion of the musculoskeletal disorders which affects both personal health and overall well-being. The cervical spine is the most mobile segment as compared to another spinal segment.[4] It has a complex and intricate construct

because of which many loads and stresses are placed on the cervical spine leading to disorders.[4] Cervical spine being at the top most of the entire spine, all the forces are transmitted from the cervical spine first. The neck and shoulders are intimately connected by muscles and multiple nerve pathways, so pain in any one of the structures can lead to pain in the corresponding structure.

Neck pain is associated with the amount of fixed working postures.[5] The prevalence of work related musculoskeletal disorders (WRMSDs) is high in occupation which involve constant postures for long hours, excessive use of specific movements, lack of corrective measures taken etc. like IT professionals, call centre jobs, laboratory technicians, watch repairers, Tailors and many more. Medical laboratory technology is one of the most rapidly expanding health care fields. Medical laboratory technicians are a unique group of healthcare professionals who are at risk for developing work-related musculoskeletal symptoms. In the healthcare industry, medical laboratory testing plays a crucial role in the detection, diagnosis, and treatment of disease in patients. Laboratory procedures are highly repetitive and involve several risk factors. Repetitive motion injuries develop over time; they occur when muscles and joints are stressed, tendons are inflamed, nerves are pinched, and blood flow is restricted. Standing and working in awkward positions in biological safety cabinets can also cause ergonomic issues. Laboratory technicians are reported to have high levels of strain in the neck and shoulders, due to prolonged static loadings, which leads to high prevalence of neck and shoulder pain.

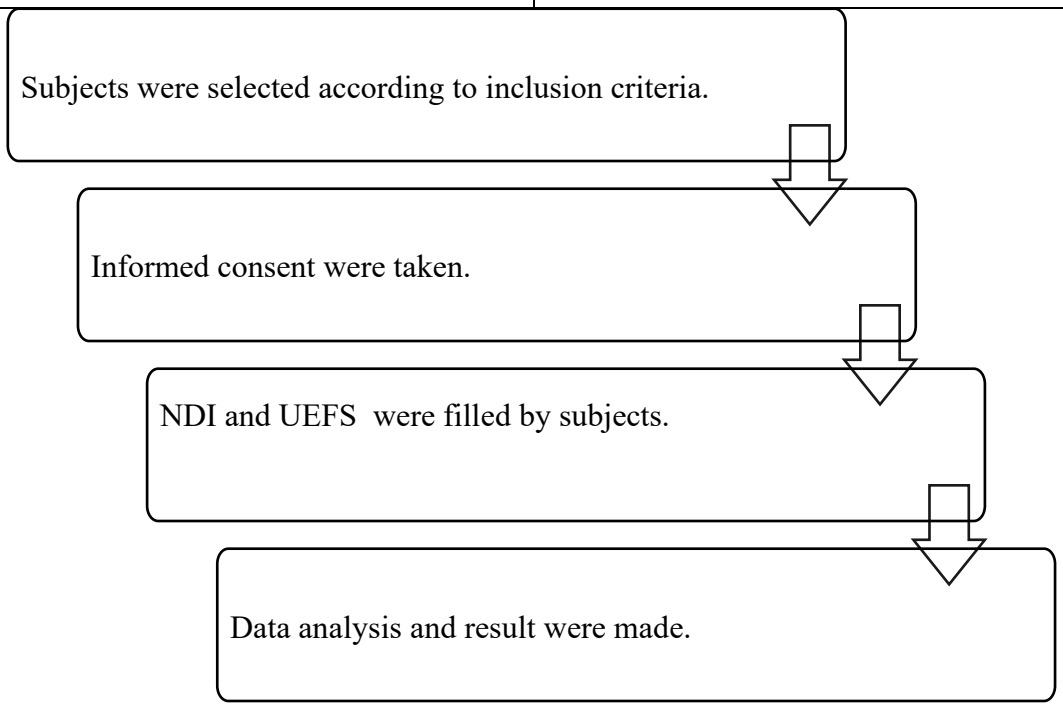
The associations of prolonged use of microscope with development of chronic pain syndromes have been recognized. [6,7] By nature, work with microscopes demands precision and the ability to concentrate over long periods of time. Looking through a microscope requires keeping the head in the same exact position for long period.[8] This type of posture especially strains the neck muscles. Work with a microscope often requires forward or side abduction movements of the upper extremities in order for the adjustment knobs to be used.[8] Such kind of occupations which require maintaining static postures for long hours put increase load or forces on the muscles and tendons which contributes to fatigue.[9] Microscope work is strenuous to the visual system as well.[9] Eye fatigue, aggravation of ametropia, headache and stress due to long working hours in these professionals have been reported.[10]

Of these, microscope users show high prevalence of neck pain, shoulder pain, elbow pain and hand pain. Today technological advancements people who work inside high-tech laboratories to hazards they have previously not experienced such as carpal tunnel syndrome, tendonitis. Therefore, medical laboratories are forced to give attention to the issues of ergonomics to prevent disorders. Thus, our study aim at finding the prevalence of neck and upper Limb function in laboratory technicians.[10]

MATERIALS AND METHOD:

- Ethical Approval: Ethical approval for this study was taken from Ahmedabad Institute of Medical Sciences
- Study Design: An observational study
- Study Setting: Study was conducted among laboratory technicians from different areas of Ahmedabad.
- Sampling Method: Convenient Sampling
- Sample Size: 40
- Outcome Measure: (1) Neck Disability Index (NDI) (2) Upper Extremity Functional Scale (UEFS)
- Selection Criteria:

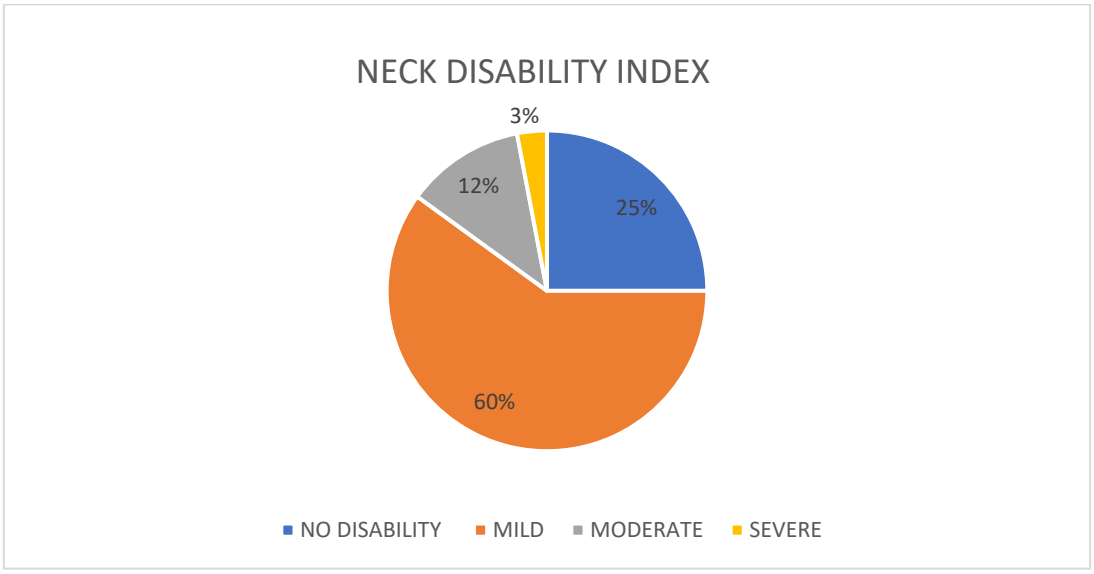
Inclusion criteria	Exclusion criteria
Age: 18 to 34 years Both males and females Minimum 2 and more than 6 years of experience	Who are not willing to participate. Any pathology related to neck, surgery to neck or shoulder and past neck trauma, diagnosed psychiatric illness, excluded.



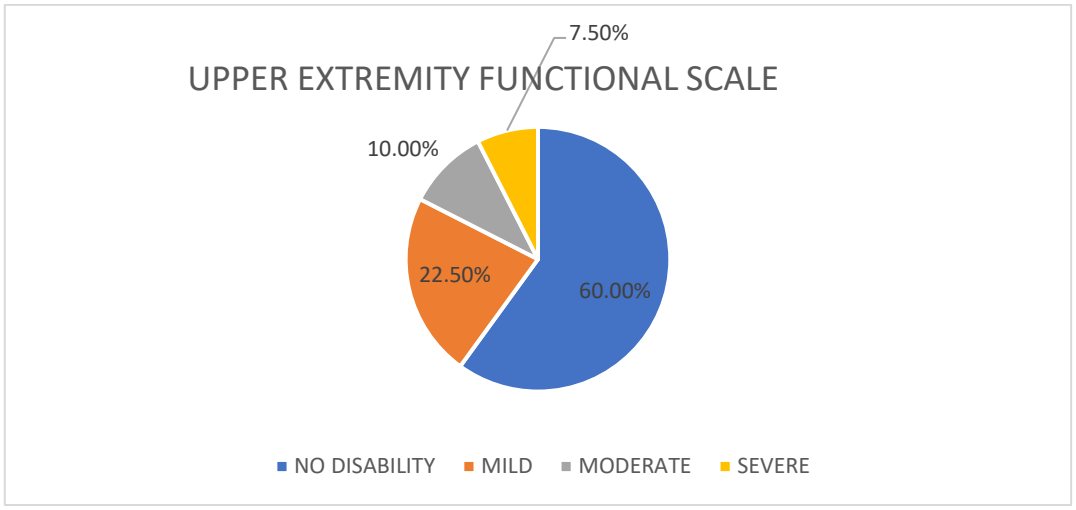
RESULT

- Neck Disability Index scale showed that 25% of the subjects have no disability, 60% of the subjects have mild disability, 12.5% of the subjects have moderate disability and 3% of the subjects had severe to complete disability.
- Upper Extremity Functional Index showed that 60% of the subjects have no disability, 22.5%of the subjects have mild disability,10.0% of the subjects have moderate disability and 7.5% of the subjects have severe disability.

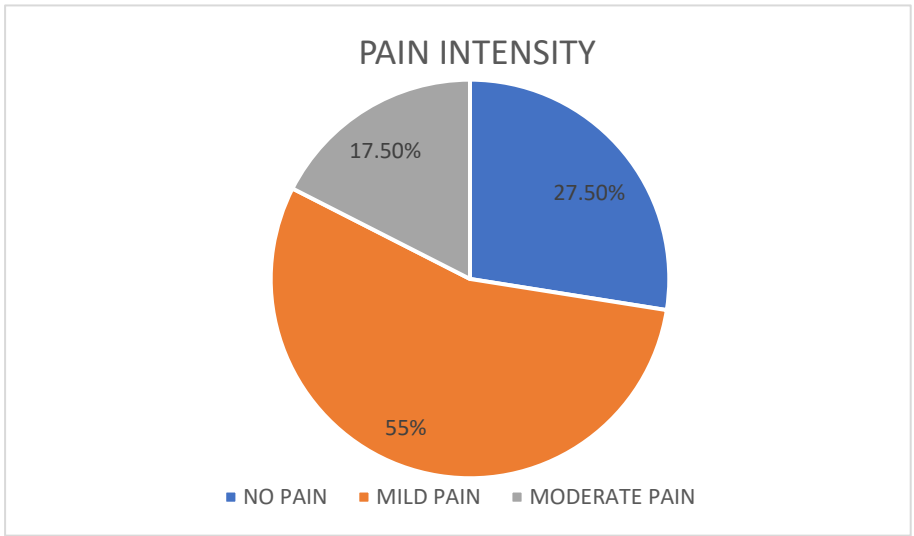
[Figure 1: Neck Disability Index]



[Figure 2: Upper Extremity Functional Scale]



[Figure 3: Pain Intensity]



DISCUSSION

- Work related musculoskeletal problems (WRMSDs) are on a rise and are affecting the social lives of the people. There was strong evidence that High levels of static contraction, prolonged static loads, and awkward postures were associated with an increased risk for WRMSDs.
- Not only dynamic activities or high intensity activities cause overuse syndromes but sedentary work or static postures are also responsible for a lot of musculoskeletal problems.
- WRMSDs arise from repetitive work activities which are not hazardous initially but cause a problem when they are practiced for a long period of time.[1]
- This study included 40 professional clinical laboratory technicians. Both males and females were included; 80% were females and 20% were males. Out of total population 75% of individuals suffering from neck pain and 40% of individuals have difficulty in ADLs.
- One study suggests that the reasons for developing neck pain can be due to repetitive strain injuries (RSI) or occupational overuse syndromes (OOS) of the musculoskeletal system or work-related musculoskeletal disorders (WRMSDs) are defined as series of micro traumatic events that accumulate in the body as a result of workplace and work characteristics that in due course, have the potential to develop into a more serious injury to the musculoskeletal system.
- The limitations of this study are that it was carried out on smaller sample size, which reduces generalization. Associated pain areas like Lower extremity and low back areas were not assessed in detail for Symptoms. It was not possible to comment whether the pain is due to work or their lifestyle. As each outcome was self-reported by the respondents which may lead to some inaccurate answers.
- The future recommendation of this study is that it can be done with higher sample size and can include associated pain region and psychological screening.

CONCLUSION

- This study concluded that there is prevalence of neck pain in 75% of individuals and 40% individuals have difficulty in Upper Extremity function among clinical laboratory technician. Also, neck pain is found to be one of the factors contributing to the increase in functional disability in laboratory technicians.

REFERENCES

1. Cote P, Cassidy JD, Carroll L The treatment of neck and low back pain: who seeks care? Who goes where? Med Care (2001)39: 956-967
2. Da´ner SD, Hilibrand AS, Hanscom BS, Brislin BT, Vaccaro AR, et al. Impact of neck and arm pain on mean health status. (2003) Spine 28: 2030-2035
3. Toomingas A Characteristics of pain drawings in the neck-shoulder region among the working population. Int Arch Occup Environ Health (1999) 72: 98106.
4. Patel et al., Prevalence of Neck Pain in Laboratory Technicians, Physiotherapy (2017) 7: S4 J Nov DOI: 10.4172/2165-7025.1000340
5. Lorusso A, Bruno S, Caputo F Risk factors for musculoskeletal complaints among microscope workers (in Italian; abstract in English). G Ital Med Lav Ergon (2007) 29: 932-937
6. Brewster D Treatise on Optics. 2nd American ed. Philadelphia, PA: privately printed.
7. J. Sillanpaa and M. Nyberg Finnish Institute of Occupational Health, The ergonomics of microscope work

8. (1835) P.O. Box 486, FI-33101 Tampere, Finland
9. Iowa state university, environment health and safety.
10. Garima Jain, Pushparaja Shetty. Occupational concerns associated with regular use of microscope. International Journal of Occupational Medicine and Environmental Health, (2014) 27(4): 591–598