Open Access

ORIGINAL ARTICLE

Work Related Neck Pain Among Female Computer Users Due to Myofascial Trigger Points (MTRPS)

Rabia Saeed[1], Rabiya Noor [2], Muhammad Salman Bashir [3]

[1]Demonstrator, University Institute of Physical Therapy, Lahore
[2]Assistant Professor, University Institute of Physical Therapy, Lahore
[3]Associate Professor, University Institute of Physical Therapy, Lahore

Keywords

Neck pain, trigger points, prevalence, Myofascial release

Author`s Contribution

[1]Interpratation and manuscript writing
[2] Discussion Conception, synthesis
[3]Planning of research and manuscript writing, Data analysis

Article Info.

Received: Oct 22, 2017
Revised: Mar 10, 2018
Accepted: Mar 17,2018

Conflict of Interest: Nil
Funding Sources: Nil

Address of Correspondence

Rabiya Noor
Rabiya.noor@yahoo.com

Cite This article as: *Saeed R, Noor R, Bashir MS. Work Related Neck Pain among Female Computer Users due to Myofascial Trigger Points(MTrPS). JRCRS. 2017; 5(2):85-88.*

A B S T R A C T

Background: The predominance of neck pain in all exclusive community has been expanding and women having more problems related to neck like neck pain. Muscukoskeletal neck pain is usually caused by myofascial trigger points (MTrPs) in neck and shoulder muscles. MTrPs are overly sensitive point in palpable taut bands of skeletal muscle fibers, that is painful on pressure.

Objective: This study was conducted to see work related neck pain due to MTrPs in different muscle group around neck and shoulder in female computer users.

Methodology: A cross-sectional survey was conducted in which self-administered questionnaire along with Visual analogue scale (VAS) was used. Basic instruction and information about study was given to participants. Total 50 participants were included in this study with myofascial triggers point in different muscles around neck and shoulder.

Result: Neck pain was more significant due to active MTrPs in levator scapulae and trapezius 17 (34%). Moderate and severe type neck pain occur due to active MTrPs in different muscle group. In majority of the participants neck pain was bilateral 34 (68%). Pillow was hard 35 (70%) with height greater than 5 inches 35 (70%). These participants having greater working hours >38hr/wk 39 (78%) with using mouse frequently 27 (54%).

Conclusion: Neck pain were more significant in patients using hard and high pillow (>5inches). Neck pain increased with having high working hours of computer use. Active MTrPs was more associated with hard and high pillow. Significant active MTrPs was found in levator scapulae and trapezius. Active MTrPs are more common in participants having mechanical neck pain.

Introduction

Musculoskeletal complaints including neck and upper limbs are common among computer workers. In a systematic review, more women compared with men reported neck pain in 83% of the 30 studies results.[1] Neck pain is a contributing factor of activity limitations in 11 to 14 % of workers.[2] Musculoskeletal neck pain is usually caused by myfascial trigger points in the neck and shoulder muscles.[3] MTrPs are stiff, distinct, palpable points in a tight cord of skeletal muscle that may be automatically painful or painful on pressure.[4] Computer use is an essential part of our Office work may cause hyperactivity of low threshold motor units causing a constant loadon muscles.[5] Myofascial trigger points were classified by simon et al .as either active or latent. While active MTrPs create an unconstrained clinical objection of pain, latent MTrPs are clinically noiseless and are just painful when appropriately stimulaed.[6] Epidemiological investigations reveal a yearly predominance of neck painranging between 15% and 50%. With one systematic review detailing amean range of 37.2%. The

predominance of neck pain higher in females in middle age[7]. During investigation on chinese school teachers the prevalence of neck/shoulder pain among females instructors was considerably more than for males. Self-administered neck/shoulder pain was related with physical exercise, prolonged standing, sitting and static posture[8]. A study led in Spain to see the predominance of neck pain changed in the course of the most recent 5 years. In 2009, the 1-year prevalence was 5.2% for neck pain (NP).Women expanded the likelihood of NP. One-year prevalence of NP diminished from 2006 (7.57%) to 2009 (5.18%). The pervasiveness of NP has diminished in the most recent years in Spain. NP were related with comparative sociodemographic and way of life propensities in 2009 compared with 2006[9]. Study on Elderly Korean People group Occupants to see the commonness and risk factor of neck pain. Information about neck pain were gathered for 1655 volunteer from a country cultivating group. The mean age of participants was 61 years and57% were ladies. The predominance of neck pain was 20.8% with ladies having a more pervasiveness[10]. A cross-sectional examination done among Estonian computer clients to see work-related hazard factors for musculoskeletal pain. In study, information were gathered by self-administered questionnaire from 202 computer clients at two universities in Estonia. Most common was pain in the neck (51%). So computer users ought to know about ergonomic procedures that can make their work less demanding and more happy.[11] A Systematic Literature Review is done to see commonness, frequency and area of myfascial trigger points in patients with spinal pain. Inside spinal pain, patients with neck pain were found to have the most astounding predominance rates of MTrPs. The trapezius descendens, levator scapulae, and suboccipitals muscle were the most common area for active MTrPs in patients with neck pain.[12]

Methodology

A cross-sectional study was conducted in which self-administered questionnaire along with Visual analogue scale (VAS) was used. Basic instructions and information about the study were given to the participants. Permission was taken from university committee and authorities of instructions where study was organized. Total 50 participants were included in this study with myofascial triggers point in different muscles of neck. In this survey convenient sampling technique was used. Sample size is calculated through openepi (online calculator). Participants were collected from university of Lahore, the female faculty member which work on computer in daily routine. A cross-sectional study was organized from March 2017- July 2017 in university of Lahore among female computer users having neck pian due to MTrPs. Total 50 participants were included in this study. Female participants with age 22-35 years having neck pain, who are working on computer more than 8 hours a day, having working hours at least more than 30/week are included. participants having neck pain other than MTrPs, diagnosed cause of neck pain, arthiritis, ankylosingspondylosis, vertigo, whiplash injuries are excluded.

A self- administered questionnaire having demographic information along with VAS were distributed among participants. A written consent were taken before collecting the data. All benefits and quires were given to participants. Physiotherapist herself check the existence of trigger points in upper trapezius, sternocleidomastoid, levator scapulae by flat palpation technique and pincer palpation technique. And also find out the underline trigger point is active or latent by using five diagnostic criteria described as (1) presence of palpable tight cord in skeletal muscle (2) presence of a hypersensible tight point in rigid cord (3) confined jerk reaction evoked by the snapping palpation of tight cord (4) produce of the typical raised pain pattern of the MTrPs in reaction to pressure (5) unconstrained nearness of typical raised pain pattern. In study the participants if initial four criteria are fulfilled the TrP was consider to be latent. Otherwise if greater part of the previously mentioned standard were available the MTrPs point was think to be active (13).

After collecting the data, results were analysed on SPSS-21 qualitative data (age) was presented through mean ± SD and through appropriate graphs and charts.

Results

50 female computer user participants were included in this study with the mean age of 28.12 ± 3.13 respectively. Level of the pain was evaluated by visual analogue scale (VAS). 34 (68%) of participant's neck pain was bilateral and 35 (70%) were using hard pillow the with

height greater than 5 inches. Working hours of 39 (78%) participants were >38 hr/wk and 27 (54%) were using computer mouse frequently as shown in table 1.

Table I: Frequency and percentage

Variables		Frequency	%	p-value
Hand dominance	Right	44	88%	
	Left	6	12%	
Pain in neck muscles	Unilateral	16	32%	.001
	Bilateral	34	68%	
Employment years	< 5 years	28	56%	
	>5 years	17	34%	
	>10 years	4	8%	
	>10 years	1	2%	
Worked/week	<38hr/wk	11	22%	
	>38hr/wk	39	78%	
Computer use/day	<6h/d	19	38%	
	>6h/d	31	62%	
Pillow	Soft	15	30%	.000
	Hard	35	70%	
Pillow height	High (>5inches)	35	70%	.008
	Low (<5incnches)	15	30%	
Mouse use	<6 h/d	23	46%	
	> 6h/d	27	54%	
Pain experience	< 1 years	18	36%	
	> 1 years	32	64%	
Pain alleviation	Rest	23	46%	
	Medication	7	14%	
	PT Treatment	3	6%	
	All	17	34%	
	Nothing	0	0%	
Trigger point	Active	18	36%	
	Non-active	8	16%	

According to this bar chart, more trigger points were found in levator scapulae and trapezius 17 (34%). Least was found in all these muscle levator scapulae and sternocleidomastoid and trapezius1(2%).

This bar chart shows the activation or latency of trigger points with VAS. Active trigger points with mild pain (12%), with moderate pain (36%), with severe pain (18%). Non-active trigger points with mild pain (16%), with moderate pain (16%), with severe pain (2%).

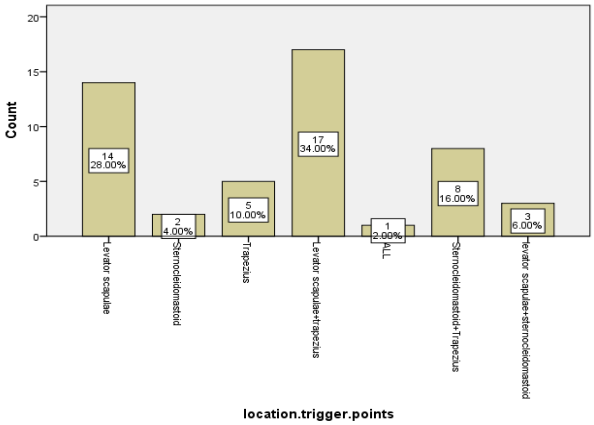

Figure 1. Location of trigger point

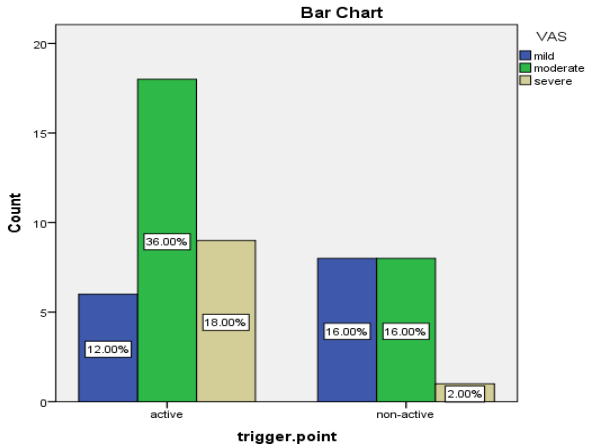

Figure 2. Trigger point

Discussion

Prevalence of work related neck pain due to trigger points in different muscles of neck was assessed among female computer users. Level of pain was assessed by VAS. 50 participants were included in this study taken from university of Lahore. A systematic literature review shows that neck pain due MTrP having high predominance rate. No noteworthy contrast was found in prevalence of neck pain due to dynamic and inactive MTrPs in various muscle group. In this study significant pain occur due to active MTrPs 18(36%). Pain is more with bilateral MTrPs 34(68%).[12] Study organized to see difference of MTrPs in upper trapezius, sternocleidomastoid, levator scapulae, suboccipital muscle between participants appeared with mechanical neck pain. Noteworthy MTrPs are found in all muscle except for levator scapulae. Active MTrPs were most successive in participants showing with mechanical neck pain. Active MTrPs of the inspected muscles referred pain pattern causing neck symptoms. Showing that neck pain

increased by MTrP in upper trapezius. Patient shows that MTrP in upper fibers of trapezius muscles, in the right side and left side cause almost all of the neck pain. Most of trigger points were active MTrPs as the participants were known about area and nature of raised pain (tightening and burning) that was produced by applying pressure to that trigger point. In this study significant MTrPs were found in levator scapulae and trapezius 17(34%). Active MTrPs produce moderate level of pain in participants (36%). The level of inactive MTrPs to produce pain was less(16% moderate pain).[13] Meta-analysis were carry out for subjects with chronic neck pain, predominance of active MTrPs in subjects with chronic NP was in the upper trapezius, levator scapulae, sternocleidomastoid, and temporalis demonstrated that the most noteworthy prevalence was on the upper trapezius than in the other muscles 38.5% on right upper trapezius,29.8% on left trapezius.Regardless of low-quality evidence, these evaluations might be to some extent accurate if it consider the high commonness of neck pain and shoulder pain in both the working and general population. These painful syndromes are common among office workers, and the upper trapezius pain is the most common neck complaint in occupational groups. In present study active MTrPs with chronic neck pain was found higher in levator scapulae 14(28%). In trapezius these were 5 (10%). These MTrPs were mostly seen in computer users due to postural effects. Study shows that neck pain due to MTrPs are more common in computer users due to faulty organomics, heavy working hours and disturbed sleep posture with hard, high pillow.[14] Study conducted to see the association between neck pain and trapezius muscle tenderness in office workers. There is strong association in neck pain intensity and existing trapezius muscle tenderness. In present study neck pain increases with active MTrPs. These trigger points also cause muscle tightness and cause tenderness in computer users due to their heavy working hours and postural effects.[15]

Conclusion

Neck pain were more significant in patients using hard and high pillow. Participants which using pillow with height more than 5inches. Neck pain increased with high working hours of computer use. Active MTrPs was more associated with hard and high pillow. Significant active MTrPs was found in levator scapulae and trapezius. Active MTrPs are more common in participants having mechanical neck pain.

References

1. Bragatto M, Bevilaqua-Grossi D, Regalo S, Sousa J, Chaves T. Associations among temporomandibular disorders, chronic neck pain and neck pain disability in computer office workers: a pilot study. Journal of oral rehabilitation. 2016;43(5):321-32.
2. Björklund M, Wiitavaara B, Heiden M. Responsiveness and minimal important change for the ProFitMap-neck questionnaire and the Neck Disability Index in women with neck–shoulder pain. Quality of Life Research. 2017;26(1):161-70.
3. Morikawa Y, Takamoto K, Nishimaru H, Taguchi T, Urakawa S, Sakai S, et al. Compression at myofascial trigger point on chronic neck pain provides pain relief through the prefrontal cortex and autonomic nervous system: a pilot study. Frontiers in neuroscience. 2017;11.
4. Shah JP, Thaker N, Heimur J, Aredo JV, Sikdar S, Gerber L. Myofascial trigger points then and now: a historical and scientific perspective. PM&R. 2015;7(7):746-61.
5. Goostrey S, Treleaven J, Johnston V. Evaluation of document location during computer use in terms of neck muscle activity and neck movement. Applied ergonomics. 2014;45(3):767-72.
6. Cerezo-Téllez E, Lacomba MT, Fuentes-Gallardo I, Mayoral del Moral O, Rodrigo-Medina B, Gutiérrez Ortega C. Dry needling of the trapezius muscle in office workers with neck pain: a randomized clinical trial. Journal of Manual & Manipulative Therapy. 2016;24(4):223-32.
7. Cohen SP, editor. Epidemiology, diagnosis, and treatment of neck pain. Mayo Clinic Proceedings; 2015: Elsevier.
8. Yue P, Liu F, Li L. Neck/shoulder pain and low back pain among school teachers in China, prevalence and risk factors. BMC public health. 2012;12(1):789.
9. Fernández-de-las-Peñas C, Alonso-Blanco C, Hernández-Barrera V, Palacios-Ceña D, Jiménez-García R, Carrasco-Garrido P. Has the prevalence of neck pain and low back pain changed over the last 5 years? A population-based national study in Spain. The Spine Journal. 2013;13(9):1069-76.
10. Son KM, Cho NH, Lim SH, Kim HA. Prevalence and risk factor of neck pain in elderly Korean community residents. Journal of Korean medical science. 2013;28(5):680-6.
11. Oha K, Animägi L, Pääsuke M, Coggon D, Merisalu E. Individual and work-related risk factors for musculoskeletal pain: a cross-sectional study among Estonian computer users. BMC musculoskeletal disorders. 2014;15(1):181.
12. Lluch E, Nijs J, De Kooning M, Van Dyck D, Vanderstraeten R, Struyf F, et al. Prevalence, incidence, localization, and pathophysiology of myofascial trigger points in patients with spinal pain: a systematic literature review. Journal of manipulative and physiological therapeutics. 2015;38(8):587-600.
13. Fernandez-de-Las-Penas C, Alonso-Blanco C, Miangolarra J. Myofascial trigger points in subjects presenting with mechanical neck pain: a blinded, controlled study. Manual therapy. 2007;12(1):29-33.
14. Chiarotto A, Clijsen R, Fernandez-de-Las-Penas C, Barbero M. The prevalence of myofascial trigger points in spinal disorders: a systematic review and meta-analysis. Physiotherapy. 2015;101:e108-e9.
15. Brandt M, Sundstrup E, Jakobsen MD, Jay K, Colado JC, Wang Y, et al. Association between neck/shoulder pain and trapezius muscle tenderness in office workers. Pain research and treatment. 2014;2014.