Original Research Article

The incidence of persistence cervicalgia among students and the risk factors contributing towards it

Rahul Nambar1, John Joseph S Martis1, Reshmina Chandni Clara D’souza1,*, Shubha N Rao1, Manish Singh2, Sheldon Matthias1

1 Dept. of General Surgery, Father Muller Medical College, Mangalore, Karnataka, India
2 Dept. of General Surgery, Srinivas Hospital, India

A B S T R A C T

Background and objective of the study: Among all the muscular skeletal disorders that affect students, cervicalgia is one of the worst, and its persistence has always been a cause of worry. The younger individuals, though the persistent neck pain is very rare, yet there is a need to identify those factors that lead to its chronicity, so that it can be prevented.

Materials and Methods: A prospective study was carried out on 390 healthy students belonging to the medical and paramedical undergraduate courses of two different medical colleges in a smart city. Study was carried over a period of 5 years from the period of December 2014 to December 2019. The study included all the students who consented to the study and where willing to participate in that. All the students were given a questionnaire at the beginning of the study and data was collected at the end of 4 months, 8 months and 12 months. In those patients where diagnosis having persistent neck pain, where were completely evaluated in order to find out the possible risk factors that can be associated with the persistence of neck pain.

Results and Observations: In the study we recruited 300 students from two medical colleges in the city of Mangalore Dakshina Kannada, smart City e in South India. In these students 200 where students from medical College 50 students from the physiotherapy College and another 50 students from allied sciences that included radiography and laboratory technicians. It was observed that. At the end of 1 year following recruitment, 61% of the individuals had complaints of neck pain. Of which on follow up 21% has persistent neck pain. Of the 61% that is 183 cases who complained of neck pain at 1 year only 120 cases, that is 40% at persistence in the end of second year. Among these 120 cases, 99 cases had use of computer for more than 12 hours a day or the use of mobile phones specially while sleeping at night for more than 4-5 hours for a day. Of those who are using the computer they further analysed for the position of the screen and the mouse, 81 of the 99 cases reported that they used it as suitable to them, without the proper ergonomics. It was noted that the most severe pain was in the second year following which they did adjustments in the posture which reduce the severity of pain. Also so said that pain use to appear after working on the computer for more than 2 hours in those who had computer related neck pain comma and if the mobile phone was used in the sleeping posture for more than an hour it lead to neck pain. We also noted that the use of computer for entertainment purposes had a higher incidence than those who used for educational purposes. Those who used a screen time on mobile phone more during the night time had a higher incidence of neck pain than those who use most screen time during the day time. Conclusion: In the study we concluded that the incidence of neck pain is higher among undergraduate students especially during the initial years of the course full stop the use of assisted learning modalities like computers and mobile phones have increased the incidence of neck pain among young. Though there is still and uncertainty about the factors that can cause neck pain in young and cannot be pointed out with accurate precision, it is what vi to considered to reduce the using of additional assisted modalities for both entertainment and education so that the morbidity that is associated with neck pain is reduced especially on the long-term.

© 2020 Published by Innovative Publication. This is an open access article under the CC BY-NC license (https://creativecommons.org/licenses/by-nc/4.0/)
1. Background and objective of the study

Cervicalgia is one of the unseen common disorders that affects young adults at least during some point in their lifetime. The incidence of cervicalgia is said to be approximately ranging between 14% and 71% during a lifetime. The prevalence of persistent neck pain lasting for at least a year is as high as 75%. It is a very sad fact that those patients who develop neck pain progress into a chronic form which occurs in at least one third of those individuals who are affected by neck pain.

It is noteworthy that this disease has a very high morbidity that it can be as a result of the disturbances in the quality of life and impairment it causes during work as a result of the discomfort it causes. Another important unseen effect of cervicalgia is that it reduces the overall productivity increases the amount of sick leaves, increases the cost of medical expenses, and has a higher chance of chronic disability especially for work. If all this is converted into to a monetary value, as stated two different studies that was done by Bernard and co-workers stated that the cost as a result of neck pain can be as 1.2 billion euros.

Though there are various studies that have evaluated musculoskeletal disorders and their relationship with computer use the specific relationship and relation to neck pain has not been evaluated. Also persistent neck pain is a less commonly studied entity. In view of all the above said we decided to study the relationship between risk factors for cervicalgia incidence in medical undergraduate children.

2. Materials and Methods

A prospective study was carried out on 390 healthy students belonging to the medical and paramedical undergraduate courses of two different medical colleges in a smart city. Study was carried over a period of 5 years from the period of December 2014 to December 2019.

The study included all the students who consented to the study and where willing to participate in that. All the students were given a questionnaire at the beginning of the study and data was collected at the end of 4 months, 8 months and 12 months. In those patients where diagnosis having persistent neck pain, where were completely evaluated in order to find out the possible risk factors that can be associated with the persistence of neck pain.

2.1. The questionnaire that was used in the study

The self-administered questionnaire comprised three sections designed to gather data on individual, computer use-related, and psychosocial factors as well as neck pain.

2.2. Patient factors included

Age, gender, body mass index, year and class of study, chronic diseases, exercise routine.

2.3. Statistical analyses

The collected data was transferred to the Microsoft excel sheet and analysed using SPSS version 23.

3. Results and Observations

In the study we recruited 300 students from two medical colleges in the city of Mangalore Dakshina Kannada, smart City e in South India. In these students 200 where students from medical College 50 students from the physiotherapy College and another 50 students from allied sciences that included radiography and laboratory technicians. It was observed that.

At the end of 1 year following recruitment, 61% 183 students of the individuals had complaints of neck pain. Of which on follow up 40 % 120 students had persistent neck pain. Of the 61% that is 183 cases who complained of neck pain at 1 year only 120 cases, that is 40% at persistence in the end of second year.

Among these 120 cases, 99 cases, 82.5 had use of computer for more than 8 hours a day or the use of mobile phones specially while sleeping at night for more than 5 hours for a day.

Of those who are using the computer they further analysed for the position of the screen and the mouse, 81 of the 99 cases (81.81%) reported that they used it as suitable to them, without the proper ergonomics.

It was noted that the most severe pain was in the second year following which they did adjustments in the posture which reduce the severity of pain. Also so said that pain use to appear after working on the computer for more than 2 hours in those who had computer related neck pain comma and if the mobile phone was used in the sleeping posture for more than an hour it lead to neck pain. We also noted that the use of computer for entertainment purposes had a higher incidence than those who used for educational purposes.

Those who used a screen time on mobile phone more during the night time had a higher.

4. Discussion

The cause of cervical pain is multifactorial and; it is have its roots of origin during the childhood period. However it is not uncommon that the lifestyle changes have also and very important role in the causation of cervicalgia.

As a result of the present lifestyle of the productive population that includes the use of gadgets, the adventure is lifestyle, the environmental activities, the exercises they do, the training programs they undergo, and the use of computers; all these have contributed significantly to the
Table 1: Computer use-related factors include

| Score | 2 | 03 to 5 | 6 to 8 | 9 to 10 |
|-------|---|---------|-------|--------|
| The type of device used | Desktop | Laptop | 8 to 9 | mobile desktop |
| The total years of computer use | < 5 | 5 to 7 | 6-8 hours | > 8 hours |
| Position of the computer screen | Always appropriate | Most of the times appropriate | Never appropriate |
| The appropriateness of the position of keyboard | Always appropriate | Most of the times appropriate | Never appropriate |
| The appropriateness of the position of mouse during computer use | Less than 2 hours | 2-4 hours | 6-8 hours | > 8 hours |
| The percent time of computer use for study | >50% | 41-50% | 21-30% | Less than 20% |
| The percent time of computer use for entertainment | Less than 20% | 21-30% | 41-50% | >50% |
| The percentage duration using keyboard | Less than 20% | 21-30% | 41-50% | >50% |
| The percentage duration using mouse/touchpad (<70% or ≥70%). | Less than 20% | 21-30% | 41-50% | >50% |
| Support used for head | Always | Most of the times | Sometimes | Rarely |
| Upper back | Always | Most of the times | Sometimes | Never |
| Low back | Always | Most of the times | Sometimes | Never |
| Arms | Always | Most of the times | Sometimes | Never |
| Feet flat on the floor | Always | Most of the times | Sometimes | Rarely |
| Their elbows | Always | Most of the times | Sometimes | Rarely |
| hips | Always | Most of the times | Sometimes | Rarely |
| Knees | Always | Most of the times | Sometimes | Rarely |
| Ankle position at 90° flexion (yes or no). | Always | Most of the times | Sometimes | Never |

increased risk for cervicalgia.8–12

As compared to the past as also evidence that the incidence of musculoskeletal disorders is on rise especially in the undergraduate population.

Use of learning applications in the form of mobile apps and computers has been gradually increasing among undergraduate children especially those in the professional colleges.9,13–15

In the medical school, it is beyond doubt that, the use of these assisted learning technologies is the highest; especially during the evening time when there are no classes but there are patients in the ward and can be examined at any time of the day.9,13–15

One of the most common musculoskeletal disorders is the neck pain. The data suggests that a third of the patients have neck pain and 1/4 of them pain in the neck that persisted.

We found that the use of mobile phones using the hand was the highest cause of neck pain, those who used a stand to keep the phone had a lesser level of neck pain.

Among the risk factors for onset and persistence of neck pain the use of electronic device related factors contributed significantly to persistence. long duration of use, use of devices without proper ergonomics use during sleep or in the lying position.

Fostervold et al16 showed that the use of computer with a low monitor screen height amended oculomotor status with significant reductions in musculoskeletal symptoms in the upper body. In the present study decreased in the incidence of musculoskeletal disorders.

The position in which the upper arm is perpendicular to the floor, the elbow at a right angle, and forearm parallel to the floor was told to be a good computer posture we also found a similar effect.

5. Conclusion

In the study we concluded that the incidence of neck pain is higher among undergraduate students especially during the initial years of the course full stop the use of assisted learning modalities like computers and mobile phones have increased the incidence of neck pain among young. Though there is still and uncertainty about the factors that can cause neck pain in young and cannot be pointed out with accurate precision, it is what we to considered to reduce the using
of additional assisted modalities for both entertainment and education so that the morbidity that is associated with neck pain is reduced especially on the long-term.

6. Source of Funding
None.

7. Conflict of Interest
None.

References
1. Arnold L, Hudson J, Bradley L, Choy E, Mease P, Wang F, et al. Understanding fibromyalgia and its related disorders. Prim Care Companion J Clin Psychiatry. 2009;10:133–44.
2. Blanpied PR, Gross AR, Elliott JM, Devaney LL, Clewley D, Walton DM, et al. Neck pain: revision 2017: clinical practice guidelines linked to the international classification of functioning, disability and health from the orthopaedic section of the American Physical Therapy Association. J Orthop Sports Physical Ther. 2017;47(7):A1–83.
3. Steenstra IA, Verbeek JH, Prinsze FJ, Knol DL. Changes in the incidence of occupational disability as a result of back and neck pain in the Netherlands. BMC Public Health. 2006;6(1):190.
4. Karnath BM. Identifying the musculoskeletal causes of neck pain. Pain. 2012;26.
5. Côté P, Velde GVD, Cassidy JD, Carroll LJ, Hogg-Johnson S, Holm LW. The burden and determinants of neck pain in workers: results of the Bone and Joint Decade 2000–2010 Task Force on Neck Pain and Its Associated Disorders. J Manip Physiol Ther. 2009;32:S70–86.
6. Côté P, van der Velde G, Cassidy JD, Carroll LJ, Hogg-Johnson S, Holm LW, et al. The Burden and Determinants of Neck Pain in Workers. Eur Spine J. 2008;17(S1):60–74.
7. Bernaards CM, Ariëns GA, Hildebrandt VH. The (cost-)effectiveness of a lifestyle physical activity intervention in addition to a work style intervention on the recovery from neck and upper limb symptoms in computer workers. BMC Musculoskeletal Disord. 2006;7(1):80.
8. Bernaards CM, Bosmans JE, Hildebrandt VH, van Tulder MW, Heymans MW. The cost-effectiveness of a lifestyle physical activity intervention in addition to a work style intervention on recovery from neck and upper limb symptoms and pain reduction in computer workers. Occup Environ Med. 2011;68:265–72.
9. Szasz S, Papp E, Georgescu L. The correlation between chronic cervicalgia and anxiety and depression disorders. Academica Sci J. Psychol Ser. 2012(1):18.
10. Skillgate E, Pico-Espinoza OJ, Hallqvist J, Bohman T, Holm L. Healthy lifestyle behavior and risk of long duration troublesome neck pain or low back pain among men and women: results from the Stockholm Public Health Cohort. Clin Epidemiol. 2017;9:491–500.
11. Lo WL, Lei D, Li L, Huang DF, Tong KF. The Perceived Benefits of an Artificial Intelligence-Embedded Mobile App Implementing Evidence-Based Guidelines for the Self-Management of Chronic Neck and Back Pain: Observational Study. JMIR mHealth uHealth. 2018;6(11):e198.
12. Bashir A, Bastola DR. Perspectives of Nurses Toward Telehealth Efficacy and Quality of Health Care: Pilot Study. JMIR Med Inf. 2018;6(2):e35.
13. Greenhalgh T. Computer assisted learning in undergraduate medical education. BMJ. 2001;322(7277):40–4.
14. Devitt P, Palmer E. Computer-aided learning: an overvalued educational resource? Med Educ. 1999;33:136–9.
15. Mottaghi P, Najimi A. Teaching Medical Students: Computer-Based Teaching versus Traditional Lecture. Iran J Med Education. 2018;18:1–7.
16. Fostervold KL, Aarás A, Lie I. Work with visual display units: Long-term health effects of high and downward line-of-sight in ordinary office environments. Int J Ind Ergonomics. 2006;36(4):331–43.

Author biography
Rahul Nambiar Resident
John Joseph S Martis Professor
Reshmina Chandni Clara D’souza Associate Professor
Shubha N Rao Professor
Manish Singh Senior Resident
Sheldon Matthias Associate Professor

Cite this article: Nambiar R, Martis JJS, D’souza RCC, Rao SN, Singh M, Matthias S. The incidence of persistence cervicalgia among students and the risk factors contributing towards it. IP Indian J Anat Surg Head, Neck Brain 2020;6(2):49–52.