

**CHANGES AT CERVICAL SPINE DUE TO EXCESS SMARTPHONE USAGE****Dr. Kedar Athawale***

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ABSTRACT

Aim and Objective: The aim of the study was to compare the changes at cervical spine seen on lateral view of cervical spine radiograph in group of people using smartphone with those not using one. **Materials and Method:** Sixty members of staff of our medical college were included in the study, all under forty years of age. Two groups were formed, each group comprising thirty participants. They were made to answer a questionnaire which comprised of symptoms related to cervical spine due to mobile phone usage. Lateral view of cervical spine was obtained in all of the participants. **Results:** First group of individuals who did not use smartphone, out of thirty - five complained of neck pain and headache {16.6%}. None complained of tingling at upper limb {0%}. None had any obvious changes at cervical spine. Second group of individuals who used smartphone for at least two years, out of thirty – twenty five complained of neck pain {83.3%} while ten complained of tingling at the upper limb {30%}. Twenty seven {90%} showed one of change at cervical spine on radiograph. **Conclusion:** The findings concluded that excessive use of smartphone does cause changes at cervical spine in majority of individuals. The changes depend on varied factors with how excessively is the smartphone used being one of them.

KEY WORDS: Cervical spine pain, Smartphone, Osteophyte.**INTRODUCTION**

In today's era of 'Digital India' smartphone is not a luxury but a need. It is estimated that nearly forty percent of Indian population own a smartphone {out of those using mobile phone} and the number is steadily rising. The rise will be fast as the rates of such phones are steadily coming down. The use is more in teenagers. Smartphone is definitely a boon to mankind but along with comes various health hazards if not used judiciously. Prolonged use of mobile phone lead to various symptoms like headache, neck pain, pain and weakness at the upper limbs, anxiety, depression, inability to concentrate, lack of sleep, extra. Pain at the cervical spine being the most common symptom. Hence study was carried out at the staff of our medical college to see for the effects of excessive mobile usage.

MATERIALS AND METHODS

The staff members of our Medical College were taken as participants of the study. Cut-off age was forty years. Sixty participants were included in the study. All of subjects were males. Two groups were formed. First group consisted of thirty individuals who owned a phone which was not a smartphone though. Second group consisted of members who owned smartphone. Criteria of inclusion were – minimum two years of use of smart phone. Those who were active on at least on two social networking sites like Whatsapp/ Facebook/ Twitter or Instagram. Those having diagnosed medical condition

like diabetes, hypertension, heart element or neck element were excluded from the study group. Consent was obtained from all. Lateral radiograph was obtained on three hundred mA machine. The radiograph was studied to see for changes like:

- loss of normal cervical lordosis
- marginal osteophytes
- reduced disc spaces
- lysis or listhesis

Questionnaire –

Name was masked.

Age –

Do you own a smartphone –

If yes since how many years –

Do you have any symptoms like neck pain/ pain or tingling at the upper limb.

If yes since when –

Do you have any diagnosed medical condition like diabetes, hypertension or any disease related to heart or neck –

If yes specify -

RESULTS

Two groups of thirty males {under the age of 40 years} were formed. The first group did not have smartphone. The other group had smartphone and they had been using for minimum of two years. Out of the thirty individuals

in the second group five were using the smartphone for five years, ten for three years and fifteen for two years.

The lateral radiograph of the first group of individuals was normal. In the second group – twenty seven individuals showed loss of normal cervical lordosis/ ten showed few, small marginal osteophytes and three showed mild reduction in disc spaces. There was no lysis or listhesis seen in any of the radiograph.

Table 1- Symptoms in Group 1.

Neck pain	5 {16.6%}
Tingling at upper limb	0 {0%}

Table 2 – Symptoms in group 2.

Neck pain	25 {83.3%}
Tingling at upper limb	10 {30%}

Table 3 – Radiological findings in Group 2.

loss of normal cervical lordosis	27 {90%}
Marginal oestophytes	10 {30%}
Reduced disc spaces	3 {10%}
Lysis or listhesis	0 {0%}

Table 4 – Age groups.

Age	Group I	Group II
25 to 30 years	5	5
30 to 35 years	15	15
35 to 40 years	10	10



Image 1: {Group 2 individual} – Degenerative changes are seen in form of loss of normal lordosis, osteophytes and reduced C5/6 and C6/7 disc spaces.



Image 2: {Group 1 individual} – Unremarkable cervical spine radiograph.

DISCUSSION

The aim of the study was to prove that excess {more than 2 years} use of mobile phones lead to early changes of spondylosis in young adults with changes confirmed on lateral radiograph of cervical spine. As I was using lateral radiograph of cervical spine I limited the symptoms to neck region. The most common symptom observed in individuals using smartphone was neck pain. It was seen in 25 individuals out of thirty. Tingling at upper limb was seen in ten individuals. Ninety percent individuals of the second group showed changes on cervical spine radiograph. The most common radiological finding was loss of normal cervical lordosis which meant that the muscles of the neck had been in spasm due to excess use over long term. In group one {who did not use smartphone} only 5 individuals complained of neck pain. None of them showed any radiological changes.

Studies conducted by Al-Khlaiwi et al, Acharya et al, Milde-Busch et al and Santini et al. showed headache as common symptom in those using mobile phones. Berolo S et al concluded that pain at hand was common symptom. Azaria et al found that neck pain was most common symptom in mobile phone users. In my study too neck pain was most common symptom. In 1994, Helliwell stated that in patients with chronic neck pain, the cervical lordosis angle is more straight or less. In my study loss of cervical lordosis was most common finding noted on cervical radiograph.

CONCLUSION

The present study revealed that the use of smartphones significantly increases chances of degeneration at early age. All the symptoms observed in our study and found

on imaging may not be correlated to excess use of smartphone. I recommend to reduce the symptoms limiting and judicious use of smartphone. Holding the device away from the head, use of hands free whenever possible and maintaining proper body posture while texting should help reduce the symptom.

REFERENCES

1. Helliwell PS, Evans PF, Wright V. The straight cervical spine: does it indicate muscle spasm? *Bone Joint J.* 1994; 76(1): 103–06. <https://doi.org/10.1302/0301-620X.76B1.8300650>.
2. Chu MK, Song HG, Kim C, Lee BC. Clinical features of headache associated with mobile phone use: a cross-sectional study in university students. *BMC Neurology.* 2011; 11: 115.
3. Acharya JP, Acharya I, Waghrey D. A Study on Some of the Common Health Effects of Cell-Phones amongst College Students. *Journal of Community Medicine and Health Education.* 2013; 3: 214.
4. Milde-Busch A, von Kries R, Thomas S, Heinrich S, Straube A, Radon K. The association between use of electronic media and prevalence of headache in adolescents: results from a populationbased cross-sectional study. *BMC Neurology.* 2010; 10.
5. Santini R, Seigne M, Bonhomme-Faivre L, Bouffet S, Defrasne E, Sage M: Symptoms reported by mobile cellular telephone users. *Pathologiebiologie.* 2001; 49: 222-226.