

RADIOLOGIC CHANGES IN WORKING IN CONDITIONS OF FORCED LABOR POSTURE

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Abstract

The rational labor process organization involves organization of working movements, regime of work and rest and physiological posture.

The static muscular work, needed to maintain appropriate posture is major cause of fatigue with subsequent functional and structural changes in the bones-joints.

The study aims to improve the diagnostics of occupational injuries to the bones-joints by clarifying the early degenerative-dystrophic changes of the spine. There are being studied 42 people, employed in the clothing industry from district of Pleven, Lovech, Veliko Tarnovo and Gabrovo.

Clinical, radiological and statistical research methods are used.

Conclusions are made and recommendations are provided for the prevention of occupational injuries in clothing industry workers.

Keywords: *clothing industry, forced posture, x-ray.*

Introduction

The rational labor process organization involves organization of working movements, regime of work and rest and physiological posture. The static muscular work, needed to maintain appropriate posture is major cause of fatigue with subsequent functional and structural changes in the bones-joints system (BJS) of the working person.

At work the vertebral column is subjected to a number of supraphysiologic loads, especially in physical workers.

The key factors are the physical stress, micro-traumatization and forced posture.

The early degenerative-dystrophic changes in the structure of BJS of the workers in forced posture have a discrete clinical expression often remaining undiagnosed.

X-ray investigation of the vertebral column enables the detection of early stages of osteochondrosis and the so-called pre-pathological stages of the lesion.

Material and Methods

The study included 42 people, hospitalized in the Department of Occupational Diseases, University Hospital – Pleven throughout 2014-2016. The professional risk was their work experience in companies of clothing industry from the districts of Pleven, Lovech, Veliko Tarnovo and Gabrovo.

Specific occupational pathologic methods were applied - occupational medical history, elimination, exposition and epidemiological test; clinical methods – medical history, somatic and neurological status, local status of the upper limbs; radiographic methods - X-ray of the cervical vertebrae; CT of cervical segment of the vertebral column.

Results and Discussion

The total number of the studied patients was 42, all of them female.

Their age varied from 26 to 64 years, average age – 47,5 years (Figure 1).

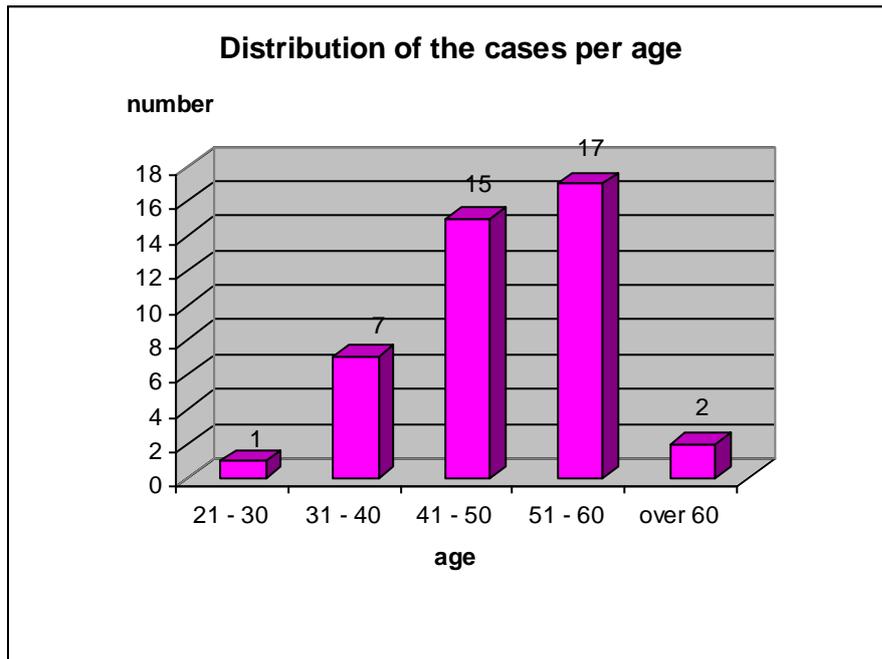


Figure 1

Their length of experience in the clothing industry was within the range from 3 to 32 years, 14,5 years on the average (Figure 2).

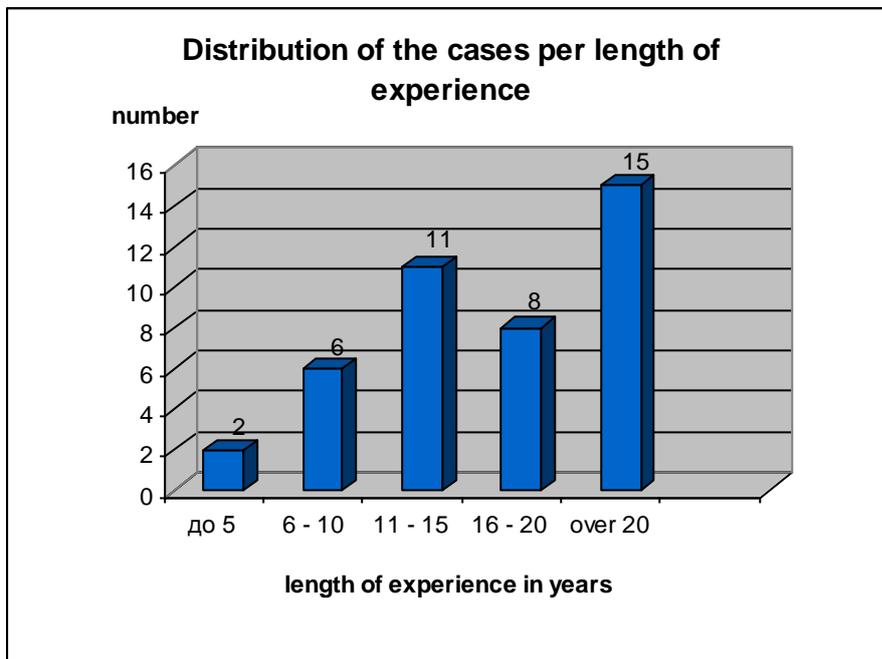


Figure 2

The studied patients were seamstresses, working in forced sitting posture. The workday is 8 hours with a lunch break of 30 minutes and two breaks of 15 minutes in the morning and afternoon. According to the clinical picture the distribution of the patients was as follows (Figure 3):

1. Pain

- Pain in the neck – all 42;

- Pain in the shoulder joints – 18;
- Pain in the fingers, wrists and forearms – 30.
- 2. Numbness of fingers and palms – 34.
- 3. Changes in the skin colour – “lacy patterns”, pallor, bluish colour – 30.
- 4. Reduced hand strength and dexterity – 36.

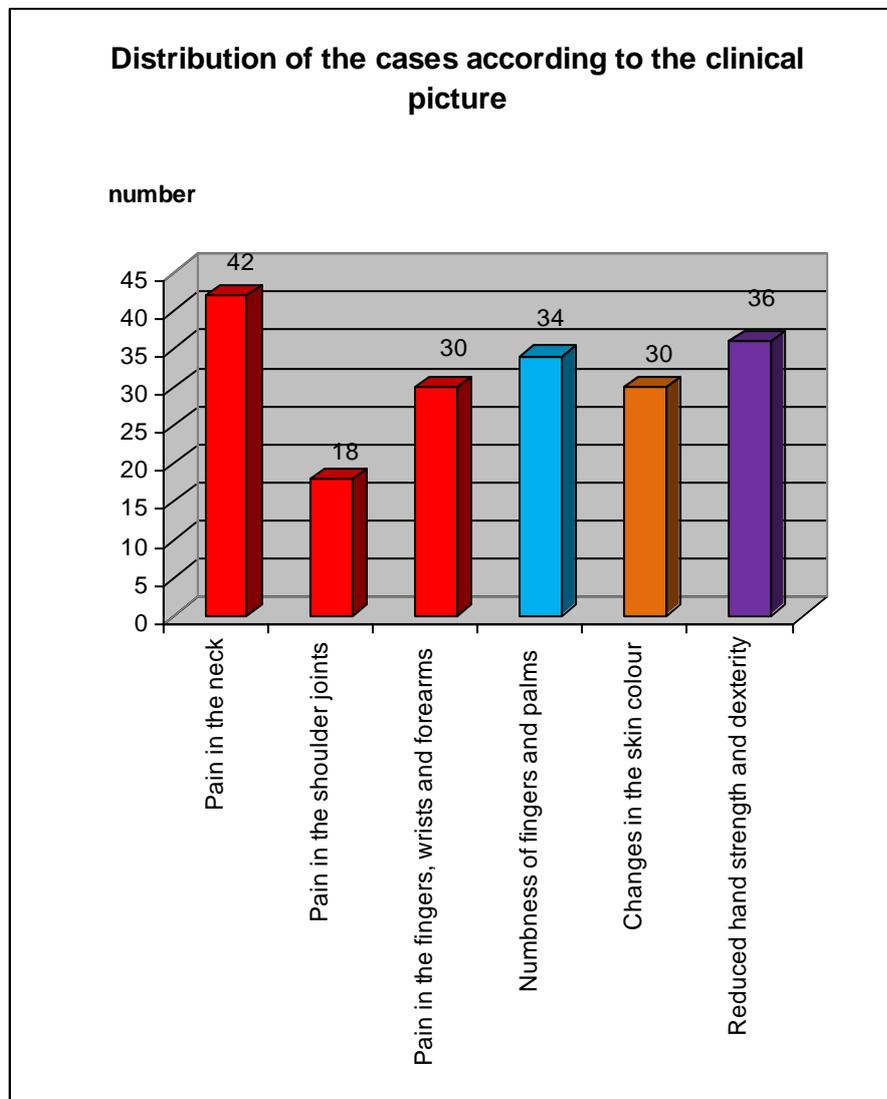


Figure 3

Objectively: In all tested patients it was found distal hypoesthesia of touch and pain of the upper limbs and reduced discriminatory sense.

X-ray of cervical vertebrae was made to 37 persons, and 5 persons had CT of the cervical segment of the vertebral column.

In all tested persons degenerative-dystrophic changes were found of cervical osteochondrosis type at different levels of localization (Figure 4 and Figure 5).

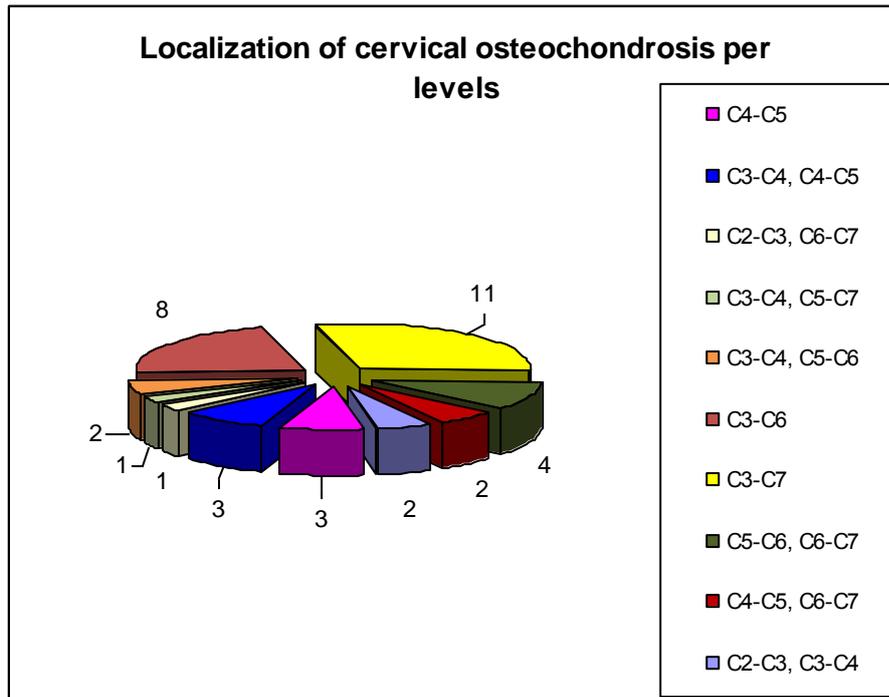


Figure 4

From CT of 5 patients it was observed:

- Two of them had osteochondrosis at C3-C6 levels and “vacuum phenomenon” at C4-C5 and C5-C6 levels;
- Two persons had cervical osteochondrosis at C3- C7 levels and discal hernia at C5-C6 level;
- One patient was with cervical discal hernia at C5-C6 level.

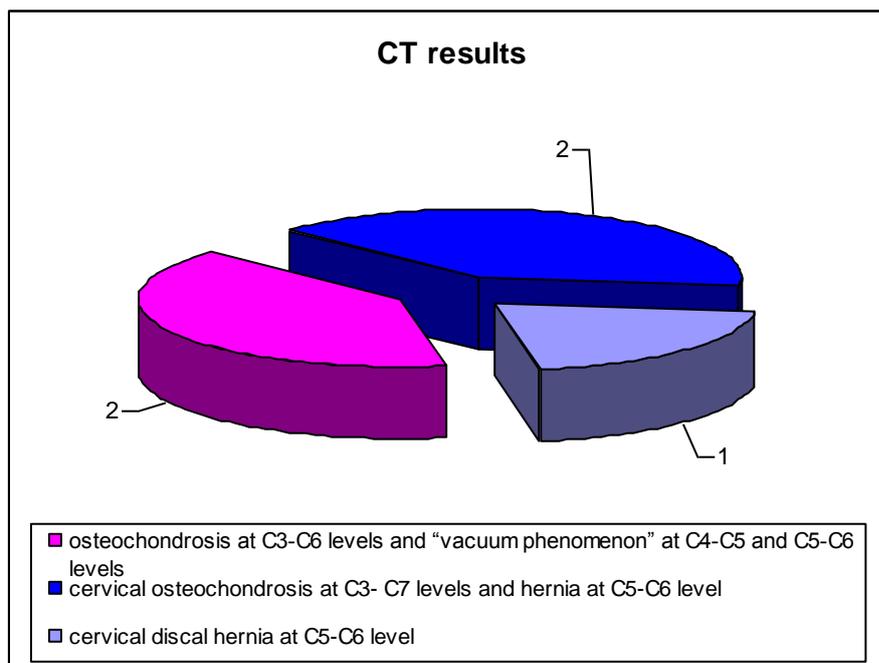


Figure 5

In the youngest tested workers with the least work experience the changes were observed at C4-C5 and C5-C6 level.

Conclusions

1. The forced posture of the workers in clothing industry, combined with uniform, repetitive work movements leads to degenerative-dystrophic changes in the cervical sector of the vertebral column.
2. The pathological changes begin at the level of maximum flexion of the neck at work - C4-C5, C5-C6.
3. Sections C3 to C6 and C7 are the most affected by the degenerative-dystrophic processes.
4. Substantial complication with prospect for disability of the workers is a cervical discal hernia, mainly at C5-C6 level.

Recommendations

1. For optimizing the working posture it should be improved the working environment through ergonomic furniture and rational organization of the work place of those involved in the clothing industry.
2. Appropriate physiological regimes of work and rest should be introduced and used during the working hours corresponding to studied occupational group.
3. To be used timely radiological diagnostic methods, including CT for early detection of abnormalities in the spine and prevention of occupational diseases of the musculoskeletal system from overstress.

References

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