

**RAYNAUD'S PHENOMENON IN WORK-RELATED VERTEBRAL
RADICULOPATHY**

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Abstract

Damage to the peripheral nervous system is developed as a result of chronic stress on the structures of the spinal cord. Typical clinical manifestations of occurring disorders are digital ischemic hands crises on type of Raynaud's phenomenon.

The subject of the study included 38 persons, treated in the Department of Occupational Diseases, University Hospital – Pleven. The patients were selected with a view to pursuing a related strain of upper limbs.

There are used clinical, laboratory and functional methods of diagnosis.

Conclusions are made and recommendations are given for timely diagnosis, adequate treatment and prevention of work-related vertebral radiculopathy.

Key words: *work-related vertebral radiculopathy, Raynaud's phenomenon.*

Introduction

Damages to the peripheral nervous system (PNS) are developed as a result of chronic stress on the spinal cord during work activities, manifested by radicular sensory, motor and autonomic symptoms. Work-related vertebral radiculopathy is due to compression and irritation of the spinal roots from degenerative changes in the vertebral column and intervertebral discs of people working in the conditions of physical labor, micro-traumatization, static and dynamic load, forced working posture and unfavorable microclimate.

Typical clinical manifestation of occurred disorders are digital ischemic hands crises on type of Raynaud's phenomenon.

Material and Methods

The study included 38 people, hospitalized in the Department of Occupational Diseases, University Hospital – Pleven throughout 2014-2016. The patients were selected with a view of their occupation, related to overstrain of the upper limbs.

Specific occupational pathologic methods were applied - occupational medical history and production characteristics; clinical methods – general and neurological status, local status of the upper limbs; laboratory methods – complete blood count, blood glucose, urea, creatinine, electrolytes; functional methods – EMG, surface dermal thermometry, biomicroscopy of capillaries, cold provocative test; imaging methods – X-ray of the cervical vertebrae.

Results and Discussion

The total number of the monitored persons was 38, including 9 male and 29 female (Figure 1).

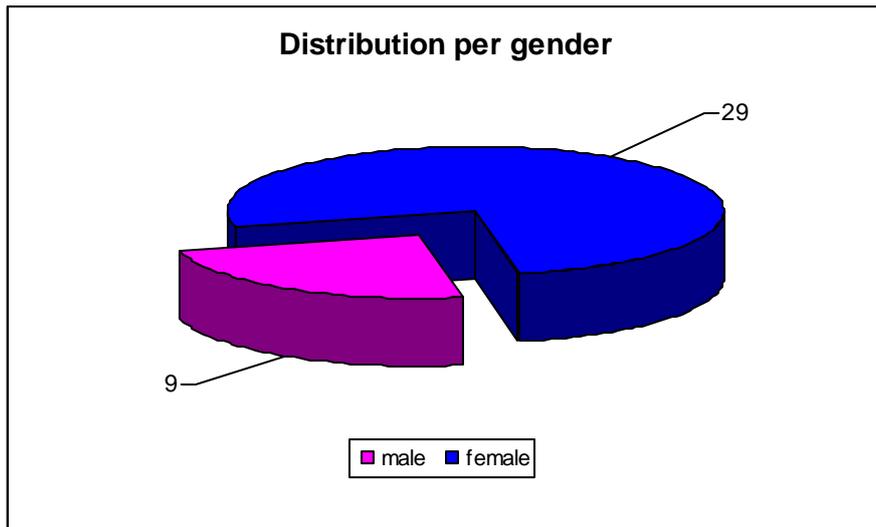


Figure 1

Their age varied from 35 to 62 years, as the average age was 48,7 (Figure 2).

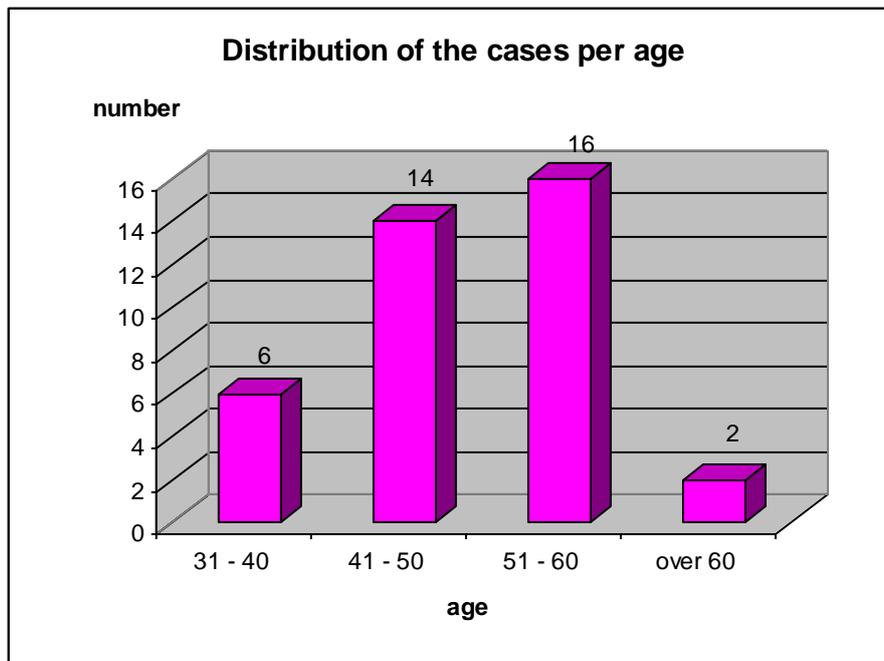


Figure 2

The patients' length of job experience was within the range from 7 to 32 years, 17,8 years on the average (Figure 3).

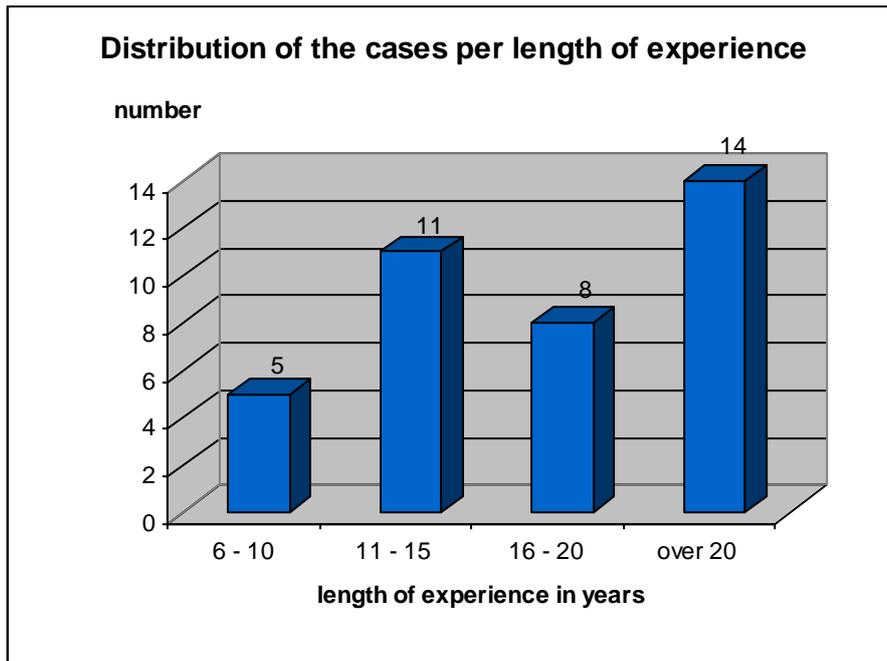


Figure 3

The distribution per sectors of the economy is presented in Figure 4, as the greatest part was employed in the clothing industry.

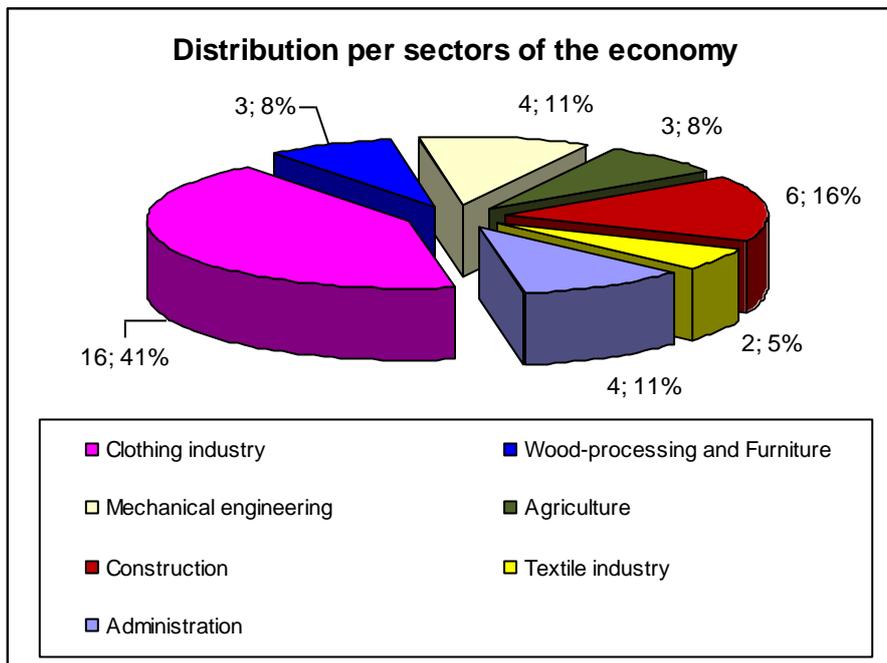


Figure 4

When taking down the occupational medical history, hard labour was reported by 8 people, micro-traumatization – by 7, systematic static and dynamic loading – 33, unfavourable production microclimate – 10 (Figure 5).

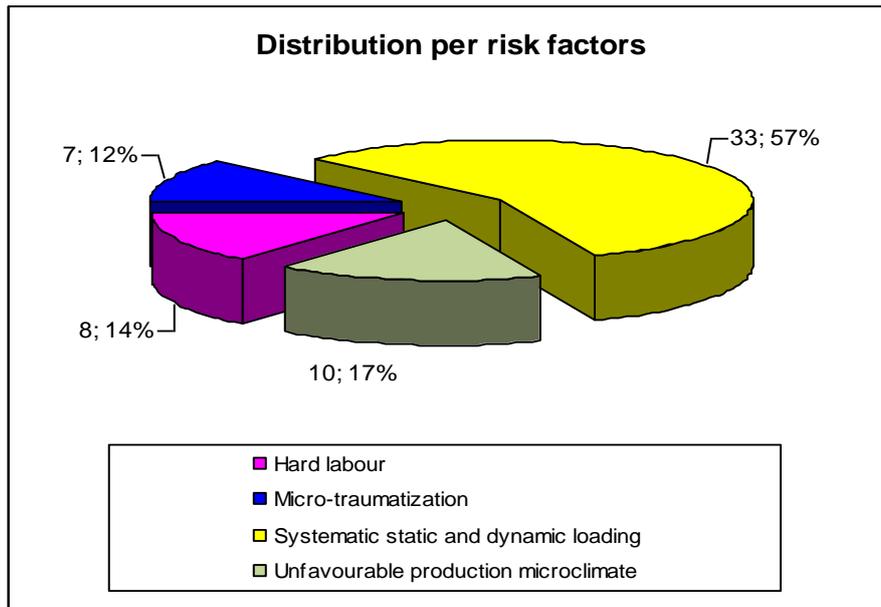


Figure 5

From the analysis it was found that all studied patients had subjective complaints - pain in the fingers, hands, wrists, forearms, elbow and shoulder joints, night numbness in the fingers, seizures (spontaneous and provoked) by whitening of the fingers – Raynaud’s type, cold, sweating, swelling and morning stiffness of the fingers, reduced strength and dexterity of the hands.

Objectively – in all studied 38 persons it was found hypoesthesia of root type C3-C8 bilaterally, manifested in varying degrees; in 23 patients it was observed distal hypoesthesia to pain, temperature and touch in the form of “gloves”.

From the X-ray investigation of the cervical vertebrae osteochondrosis changes were found in all patients, as follows per number of cases (Figure 6):

- Cervical spondylosis – 9;
- Cervical arthrosis and uncoarthrosis – 11;
- Cervical spondylarthrosis – 18.

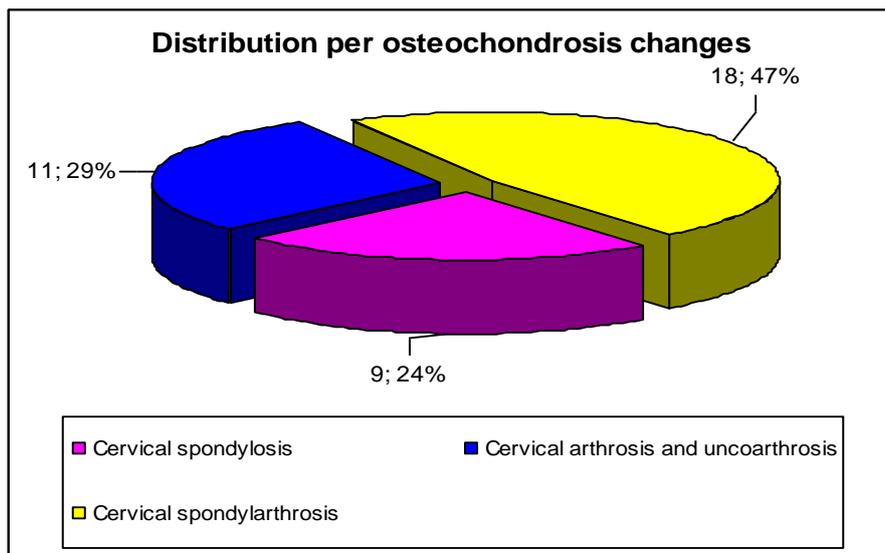


Figure 6

With a view of history of Raynaud’s phenomenon episodes with whitening of phalanges and even the whole fingers provoked by cold, vegetological investigations were carried out by means of capillaroscopy and cold test. Functional changes in the capillaries predominantly expressed by spasm of capillary loops were found in 28 of the patients. In the cold provocative test – “water” and “cold” test, it was observed delayed and incomplete recovery to the basic temperature. In the cold test 18 persons had Raynaud’s phenomenon, and the rest 20 – phenomenon of the “lacy pattern” on pink or cyanotic background (Figure 7).

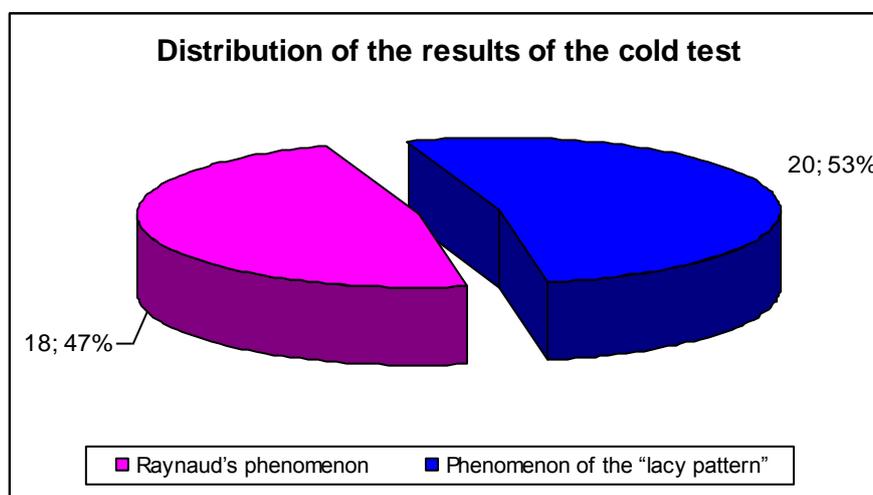


Figure 7

Conclusions

- The harmful factors in many sectors of the economy determined the occurrence of the spinal cord and peripheral nervous system damages.
- Raynaud’s phenomenon is part of the syndrome-complex of work-related vertebral radiculopathy.

Recommendations

- It is appropriate the timely diagnosis and treatment of cases of vertebral radiculopathy for avoiding the disease to become chronic and complicated.
- Employees with symptoms of Raynaud's phenomenon should not be exposed to cold and should use appropriate personal protective equipment.
- For the risk groups of workers tools and methods for health promotion at the workplace should be applied (occupational safety diet, rational organization of breaks at work, organized recreation, etc.).

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