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Summary of the thesis: "The role of physical therapy in recovery of thoracic trauma, contusion type"

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The thesis is structured in three parts, each containing several chapters:

- **Part I. The theoretical, conceptual and methodological**, has, in its structure, six chapters which are developing theoretical, conceptual and methodological concepts, conceptual describing the type of thoracic trauma, contusion type, definitions and coverage of the topic in the specialty literature.
- **Part II. Preliminary research on recovery of thoracic trauma, contusion type and respiratory reeducation**, consists in four chapters, and substantiates the recovery program of the thoracic concussion, demonstrating the importance of the respiratory reeducation physical exercise and assessment variables that relate to life quality improving.
- **Part III - final research**, is composed of four chapters and highlights the benefits of physical therapist program in thoracic contusion recovery, in which respiratory reeducation plays a decisive role, in comparison with traditional methods, the medical conservative grade. I, also, I emphasized the connection between the assessments made on subjects and their life quality increasing.

PhD thesis ends with a bibliography and its annexes.

Introduction

This subject of my research was not addressed by national specialty literature, which is an element of originality.

Regardless of the timing of the human evolutionary scale, the thoracic trauma raised and raises the same issues: exacerbated pain, recovery and social reintegration, which are long lasting.

Long recovery of thoracic trauma patients is caused, primarily, by conservative therapeutic approach: bed rest and painkillers treatment. I believe that the activities of physical therapy can help, in these situations, by making an easier and a shorter recovery and social reintegration period.

Thus, drawing up a recovery protocol of the patient with thoracic trauma, aimed at recovery methods and means, to be used in hospitals, physical therapy centers and home, is one of the purpose of this research.

Finally, this research addresses the following issues:

- reducing the period of hospitalization, reduce the hospital costs,
- efficient recovery and reintegration of the person who suffered a thoracic trauma, leads to shorten the length of sick leave, wich is a benefit to the patient (by subtracting the related costs of recovery, and the initiation of work for employees) and employer.

Research objectives

- Reduction of symptoms caused by thoracic contusion;
- Encouraging the subjects participation in physical and social activities and thus increase their determination, shortening the term of functional recovery and the social reintegration;
- Waiver of active smoking (if applicable);
- Changing lifestyle through changes with long-term beneficial effect;
- Preventing respiratory disability caused by thoracic contusion;
- Improved life quality of the person who underwent a thoracic contusion.

Functional recovery has, as its central element, respiratory reeducation, around which, in terms of the physical therapist, it is built the entire exercise program.

Tasks respiratory reeducation

- phasing selection of subjects;
- establishing and phasing functional recovery methods and means postthoracic contusion;
- substantiation and analysis of the effects of functional recovery centered on respiratory reeducation;
- Setting assessment of the recovery means postthoracic contusion.

Research hypotheses

1) *By using an individualized physical therapy program, applied in thoracic contusion, can be reduced the functional recovery time, compared with the time needed to recover by conservative therapy means (bed rest and medication).*

2) *The respiratory reeducation programs are improving the life quality of the patients with thoracic trauma, contusion type.*

Research methods

- bibliographical study method and historical method
- questionnaire investigation method
- measurement and evaluation method

- experimental method:

- *The novelty of this research translates into the type of pathology to whom the recovery methods are applied.*

- *Also, as a novelty, I used the device "TES 1", used for this purpose, in order to improve the current volume, inspiratory and expiratory reserve volumes and respiratory rate.*

- sociometric method

- statistical and mathematical method

- graphical method.

Research conclusions

1. The theme of my research has not been addressed in the national specialty literature, which is an element of originality.

2. The recovery period of the subjects from the experimental group, suffering from thoracic contusion, is much shorter than the subjects in the control group case.

Reducing to about half (48.78%) the postthoracic contusion chest recovery time by physical therapy means, confirms the first research hypothesis.

3. By The thoracic trauma, contusion type, recovery, the physical therapy contributes **AND** in terms of reducing medical costs (hospitalization, other therapy).

4. By lowering the number of days needed for thoracic contusion recovery, were obtained the decrease of the sick days for the experimental group subjects, realizing them involved social spending decrease and the needed time decreasing for social reintegration of these subjects.

5. ESCT note, calculated by a specially designed formula for this research, is a very useful tool for assessing the development of thoracic contusion and life quality.

6. Respiratory reeducation lead to improve the respiratory function from the fifth day of the program, at the end of which, the experimental group subjects attested normal breathing variables.

7. Pain accused by the experimental group subjects begins to decline more quickly (even without medication) compared with the degree of pain accused (and evidenced by the note of pain) by the control group subjects.

8. By physiotherapy is obtained a good pain management and an improvement in the respiration which, as a result, improve the life quality of the experimental group subjects.

Conclusions 5, 6, 7 and 8, above mentioned, confirms the second research hypothesis.

9. The "TES 1" device, designed specifically for this research, has demonstrated its effectiveness in helping to develop respiratory volumes assessed and to improve the respiratory rate.

10. During the establishing of the two study groups, I found that the demographics data, monitored during by research subjects inclusion, are favorable factors of thoracic contusion.

Elements of the research originality

1. Postthoracic contusion recovery by physiotherapeutic means is not approached in the specialty literature. The positive results have had a beneficial impact both on the individual level, by correcting symptoms (pain and dyspnoea) and decreased time needed social reintegration and on the social level by lowering implied use of material and human resources.

2. The "TES 1", device specially designed for this research, has successfully contributed to improved respiratory parameters evaluated for experimental group subjects, especially respiratory reserve volume. The "TES 1" device is under approval.

3. Pain note is an important monitoring tool in my research. Designed for the assessment of thoracic pain caused by contusion, may be used to monitor any pathology which is generating pain.

4. Complex formula used for calculating the ESCT note, proved a useful tool for monitoring and, I believe, it can be introduced into specialty practice.