Introduction.– Pain and beliefs have an influence on the patient’s course in rehabilitation and their relationships are complex. The aim of this study was to understand the relationships between pain at admission and the evolution of beliefs during rehabilitation as well as the relationships between pain and beliefs one year after rehabilitation.

Patients and methods.– Six hundred and thirty-one consecutive patients admitted in rehabilitation after musculoskeletal trauma, were included and assessed at admission, at discharge and one year after discharge. Pain was measured by VAS (Visual Analogical Scale) and beliefs by judgement on Lickert scales. Four kinds of beliefs were evaluated: fear of a severe origin of pain, fear of movement, fear of pain and feeling of distress (loss of control). The association between pain and beliefs was assessed by logistic regressions, adjusted for gender, age, native language, education and bio-psycho-social complexity.

Results.– At discharge, 44% of patients felt less distressed by pain, 34% are reinsured with regard to their fear of a severe origin of pain, 38% have less fear of pain and 33% have less fear of movement. The higher the pain, the probability that the distress diminished, this being true up to a threshold (70 mm/100) beyond which there was a plateau. At one year, the higher the pain, the more dysfunctional the fears.

Discussion.– The relationships between pain and beliefs are complex and may change all along rehabilitation. During hospitalization, one could hope that the patient would be reinsured and would gain self-control again, if pain does not exceed a certain threshold. After one year, high pain increases the risk of dys-functional beliefs. For practical clinical, these data suggest to think in terms of the more accessible “entrance door”, act against pain and/or against beliefs, adapted to each patient.

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What kind of relationships between the evolution of pain, beliefs and bio-psycho-social complexity after musculoskeletal trauma?

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Keywords: Pain; Beliefs; Rehabilitation; Bio-psycho-social complexity

Introduction.– Pain and beliefs have an influence on the patient’s course in rehabilitation, pain causes fears and fears influence pain perception. The aim of this study was to understand changes in pain and beliefs during rehabilitation taking into account the bio-psycho-social complexity.

Patients and methods.– Six hundred and thirty-one consecutive patients admitted in rehabilitation after a musculoskeletal trauma were included and assessed at admission and at discharge. Pain was measured by VAS (Visual Analogue Scale), bio-psycho-social complexity by Intermed scale, and beliefs by judgement on Lickert scales. Four kinds of beliefs were evaluated: fear of a severe origin of pain, fear of movement, fear of pain and feeling of distress (loss of control). The association between the changes in pain and beliefs during the hospitalization was assessed by linear regressions.

Results.– After adjustment for gender, age, education and native language, patients with a decrease in pain during rehabilitation had higher probability of decreasing their fears. For the distress feeling, this relationship was weaker among bio-psycho-socially complex patients (odds-ratio 1.22 for each decrease of 10 mm/100 VAS) than among non-complex patients (OR 1.47). Patients with a pain decrease of 30% or more during hospitalization had higher probability of seeing their fears decrease, this relationship being stronger in complex patients for fear of a severe origin of pain.

Discussion.– The relationships between changes in pain and beliefs move in the same direction. The greater the patients’ pain, the less they are able to modify their dysfunctional beliefs. When the pain diminishes by 30% or more, the probability of challenging the beliefs is increased. The prognosis with regard to feeling of distress and fear of a severe origin of pain, is worse among bio-psycho-socially complex patients.

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Paravertebral and radicular pain: Drug and/or physical analgesia

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Keywords: Physical modalities; Steroids; Neuropathic pain; Analgesia

Introduction.– We present some contemporaneous theories of pain and therapeutic concepts of analgesia, including drug and physical analgesia.

Goal.– Comparative evaluation of drug, physical and combined analgesia on the paravertebral and peripheral radicular pain.

Patients and methods.– During the last years, a total of 93 patients with a vertebrogenic radiculopathy were observed and investigated in patients and outpatients. Patients were randomized to three treatment groups of 31 each one. The investigation was conducted with consideration for the protection of patients, as outlined in the Declaration of Helsinki, and was approved by the appropriate institutional review boards and ethics commissions. All patients gave written informed consent before undergoing any examination or study procedure. Group 1 received only drug therapy–paravertebral infiltrations with cortico-steroids, B vitamins and local anesthetic. Patients of group 3 received only physical modalities (complex rehabilitation programme including transcutaneous electro-neurostimulation [TENS], exercises, massages, sea lye compresses distally).

In group 2, we applied drug and physical analgesia techniques. For statistical evaluation we used t-test (Anova) and Wilcoxon rank test (non parametrical correlation analysis), performed using SPSS package. The treatment difference was considered to be statistically significant if the P value was < 0.05.

Results.– The comparative analysis of results shows a significant improvement of the symptoms of the patients, concerning pain relief (visualized by the analysis of results of visual analogue scale), radiculopathy (Lassegue’s sign), depression (scale of Zung). The drug analgesia in group 1 is fast, but short. The efficacy in group 3 is slow, but stable, and durable. We observed best results in group 2. We expose our own conception of pathological mechanisms of physical analgesia.

Discussion.– The drug therapy is efficient but with short duration. The physical analgesia initiates its effect slowly, but results are stable. Best efficacy was observed in case of combination of medication with physical modalities – in the beginning due to non-steroidal anti-inflammatory drug, toward the moment of effective «input» of physical modalities.

Conclusion.– We could recommend the complex program for treatment of the paravertebral pain.

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Short-time and long-time effects of rehabilitation exercise training on functional balance tests and gait markers in patients with fibromyalgia

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Keywords: Fibromyalgia; Gait; Posture; Rehabilitation

Purpose.– The purpose of this study was to assess the short-term and long-term impact of a rehabilitation exercise training (RET) program on functional capacities and gait markers. Exercise, mainly aerobic training, is a common recommendation in the management of fibromyalgia (FM) with evidence of efficacy. Functional locomotion tests and gait analysis are considered as a new
way of measurement in neurological diseases including fibromyalgia, whereas the impact of RET on locomotion remains unknown.

**Participant.** Sixteen patients meeting ACR criteria for FM were included.

**Methods.** Patients performed 12 weeks of ergocycle exercise training, according to the American College of Sports Medicine recommendations, associated with balneotherapy and relaxation. Gait analysis was performed by a validated ambulatory accelerometric method (Locometrix). Gait markers were: walking velocity (m/s), stride length (m), stride frequency (Hz), stride regularity (dimensionless), and cranio-caudal power (W/kg), which are considered as a measurement of kinesia. In addition, Timed Up and Go test (TUG) and One Leg Balance Test with eyes open (EO) and with eyes closed (EC) were performed.

**Analysis.** Using non-parametric statistics, an intention to treat model was used to analyze the results.

**Results.** Timed Up and Go test scores were respectively (before; just after and after 6 month): 9.5 ± 2.4; 8.1 ± 1.7 (P < 0.05) and 8.6 ± 2.1 s (NS). OLB scores were with EO: 38.4 ± 30.1; 47.3 ± 43.1 (NS) and 39.0 ± 38.6 (NS) and with EC: 7.4 ± 5.4; 10.7 ± 9.8 (P < 0.05) and 7.4 ± 3.7 (NS). The mean walking velocities were respectively 1.1 ± 0.1; 1.2 ± 0.1 (P < 0.05) and 1.2 ± 0.1 (P < 0.05). Stride frequencies were 0.95 ± 0.09; 0.98 ± 0.07 (P < 0.05) and 0.96 ± 0.07 (NS) and stride lengths were 1.12 ± 0.05; 1.17 ± 0.08 (P < 0.05) and 1.21 ± 0.1 (P < 0.01). Stride regularities were 293 ± 28; 312 ± 35 and 287 ± 41. The cranio-caudal powers were 3.1 ± 1.5; 4.4 ± 1.5 (P < 0.05) and 3.5 ± 1.2 W/Kg (NS).

**Discussion.** Benefits regarding balance, acquired during a 12-week rehabilitation protocol, were not maintained after 3 months. Concerning the gait, only 2 parameters remained improved. This study shows the necessity of finding methods to assure continuity of acquired benefits.

**Conclusion.** Our data agree with the fact that the VO2max decreases with age, obesity and a weight increase. This result may be related with a decrease in the lean mass and an excess of adiposity which can occur during the period out of work. Our results show the multi-factorial nature of the cardio-respiratory deconditioning in chronic pain.

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