

Influences and consequences resulting in addictions in general and to chronic alcoholism, especially for patients with spinal cord injury

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Abstract

Introduction: Spinal cord injury can be a cause of severe disability, with important consequences at the individual and social levels. Causes are often produced by falls or road accidents; and addictions (particularly chronic ethylism) also increase the risk of vertebral-medullary lesions.

Materials and Methods: With the approval of the TEHBA Ethics Commission (no.17464/14.06.2019), we used specific tests (DASS-21, MOS SF-36, SMAST, AUDIT, CAGE, AIS) and we questioned a group of patients admitted to the THEBA Neuro-Muscle Recovery Clinic after being treated in the Spinal Neurosurgery Service for acute and subacute vertebral medullary trauma.

Results: We evaluated the link between addictions (especially ethanol), the risk of spinal cord injury, and the underlying subacute evolution of patients with this pathology.

Conclusions: Substance abuse (especially ethanol) increases the risk of spinal cord injury and is a serious public health problem.

Keywords: *SCI, DASS-21, MOS SF-36, AUDIT, CAGE, SMAST, Neuromuscular Recovery*

INTRODUCTION

Spinal cord injury can be a cause of severe disability, with important consequences at the individual and social levels (1) (2) (3). Causes are often produced by falls or road accidents (4); and addictions (particularly chronic ethylism) also increase the risk of vertebral-medullary lesions (5) (6). We assessed the severity of the deficit after spinal cord injury using the AIS scale (American Spinal Injury Association (ASIA) Impairment Scale) (7). It is difficult to appreciate the individual consumption of ethanol in the population. That is why psychological tests are used trying to quantify the amount of alcohol consumed daily. Such tests are: AUDIT, CAGE, SMAST.

We evaluated the psychological impact of spinal cord injury using the DASS-21 and MOS SF36 scales, with an important role in assessing patients' emotional changes.

Materials and Methods:

With the approval of the TEHBA Ethics Commission (no.17464/14.06.2019), we used specific tests (DASS 21, MOS SF36, SMAST, AUDIT, CAGE, AIS) and we questioned a group of 17 patients admitted to the SCUBA Neuro-Muscle Recovery Clinic after being treated in the Spinal Neurosurgery Service for acute and subacute vertebral medullary trauma.

AUDIT (Alcohol Use Disorders Identification Test) is made for the early identification of behavioral disorders regarding ethanolic consumption using 10 questions. This test measures the consumption of alcohol units (of 10 grams each) and it is considered that a weekly consumption of more than 10 units is harmful. An AUDIT score greater than or equal to 8 indicates a potentially harmful ethanolic consumption (8) (9) (10). CAGE (consisting of the acronyms Cut, Annoyed, Guilty and Eye-opener) is a quick test that assesses by 4 questions the risk of ethanol abuse. A CAGE score greater than 2 indicates a problem with ethanolic abuse (11) (12) (13).

SMAST (Short Michigan Alcoholism Screening Test) is a questionnaire with 13 questions that assesses the history of ethanol consumption, and a result greater than 4 indicates a potential ethanolic abuse (14) (15).

DASS-21 (Depression Anxiety Stress Scales) is a test used in the posttraumatic clinical evaluation (through 21 questions) of patients. The test provides data on mood, anxiety and stress (16) (17) (18).

MOS SF-36 (Medical Outcomes Study 36-item short-form) is a test consisting of 36 questions that measure general health. The levels evaluated with MOS SF-36 are: “physical functioning,” “role physical,” “bodily pain,” “general health,” “vitality,” “social functioning,” “role emotional,” and “mental health”, quantifying the patient's physical and mental function (19) (20) (21).

Statistical processing of patient data was performed using Microsoft Office 2013.

Results

We evaluated the link between addictions (especially ethanol), the risk of vertebro-medullary trauma, and the underlying subacute evolution of patients with this pathology.

We studied a group of 17 patients consisting of 6 women (35%) and 11 (65%) men hospitalized after spinal cord injury in THEBA.

GENDER DISTRIBUTION OF PATIENTS

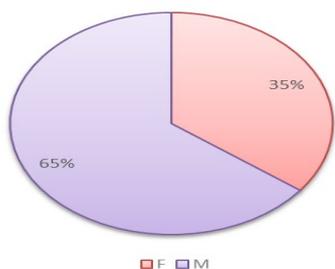


Fig 1. Gender distribution of patients

We evaluated the dependence on ethanol using the AUDIT, CAGE and SMAST tests. We observed a directly proportional relationship between AUDIT, SMAST and CAGE results (F test 0,002, Pearson test 0,746). Only men patients were with addictions: 7 (AUDIT, SMAST) / 4 (CAGE).

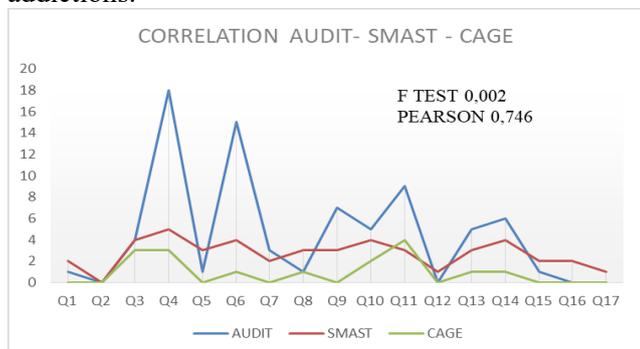


Fig 2. Correlation between AUDIT, SMAST, CAGE In AIS patient evaluation we found that: of the women, 3 had the score AIS A and 3 the score AIS C; of the men, 4 had AIS A score, 5- AIS C score and 2 AIS D score.

AIS/ FRANKEL RESULTS

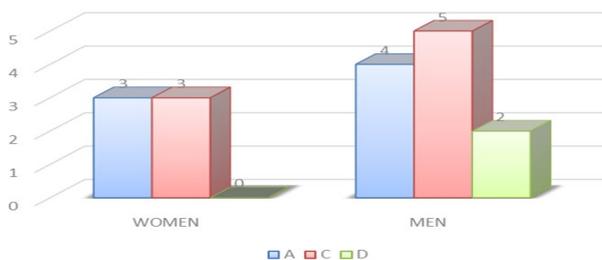


Fig 3. AIS/ Frankel scale results

Knowing that AIS A gradation describes a complete (particularly severe) neurological lesion, unlike grades C or D (which describe incomplete neurological lesions, with more optimistic recovery prospects); we have comparatively researched the type of neurological deficit (A gradation versus C + D gradation) in patients consuming and not consuming alcoholic beverages abusively.

At the AUDIT test, AIS A gradation had 2 ethanolic patients together with 5 non-ethanolic patients; and grade C and D had 5 ethanolic patients and 5 non-ethanolic patients.

AUDIT-AIS

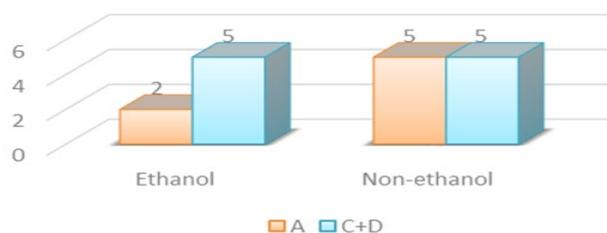


Fig 4. AUDIT- AIS RESULTS

CAGE testing showed that of the ethanolic patients, 1 had AIS A grading and 3 had C and D grading; and of the non-ethanolic patients, 6 had AIS A gradation, and 7 had C and D gradations.

CAGE-AIS

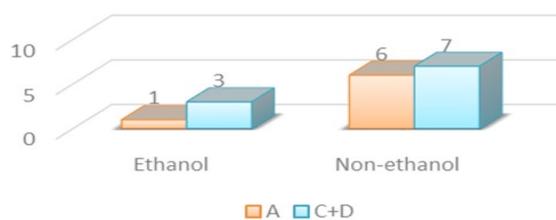


Fig 5. CAGE- AIS results

In the SMAST test, the AIS grades were as follows: A (for one ethanolic patient and 6 non-ethanolic patients), C and D (for 6 ethanolic patients and for 4 non-ethanolic patients).

SMAST- AIS

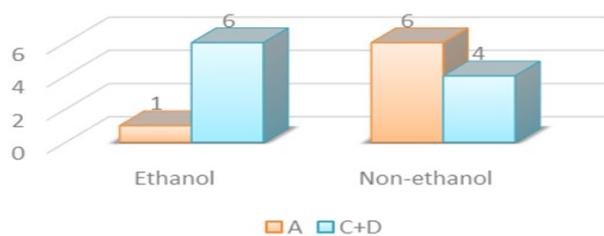


Fig 6. SMAST- AIS results

We appreciated the results of the MOS SF36 test by achieving averages in the population of ethanol-consuming patients, compared to non-ethanol-consuming patients. The results of the M36 SF36 comparative test in non-alcoholic versus alcoholic patients were: 26,5- 20 (for physical functioning), 30-25 (for role in limitation physical health), 53,43-71,43 (for role limitation in emotional problems), 58,5-59,29 (for energy/ fatigue), 71,6-69,14 (for emotional well being), 77,5-67,86 (for social functioning), 46,25- 35,36 (for pain), 72,5-81,43 (for general health), 45-32,14 (for health change).

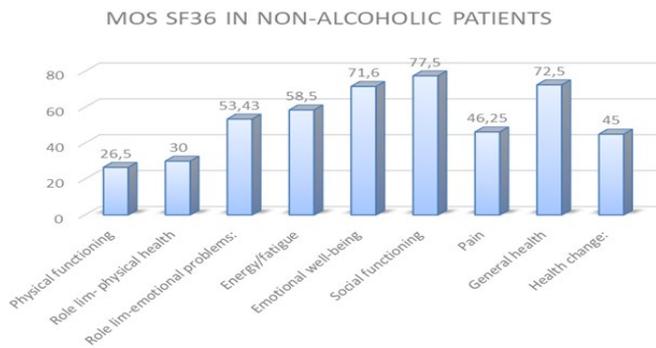


Fig 7. MOS SF-36 results in non-alcoholic patients

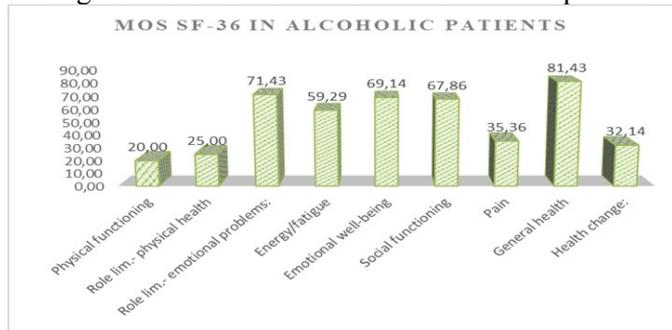


Fig 8. MOS SF-36 in alcoholic patient results

If we make a comparison of the results of the SF36 MOS test in non-alcoholic patients with alcoholic patients, we notice how patients with addictions perceive more diminished: their physical functioning, limiting their physical health, their emotional well-being, their social functioning, pain and changes in their health; and patients with ethanolic dependence perceive more pronounced emotional problems, fatigue and their general health state.

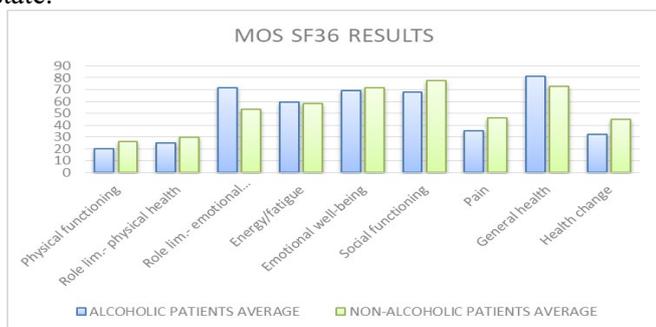


FIG 9. Common results of the MOS SF-36 test in patients with and without addictions

Then we calculated the averages of the DASS-21 scale in ethanol consuming patients and we obtained the following values: 2.71 (for the depression score), 4.14 (for the anxiety score) and 5.71 (for the stress score).

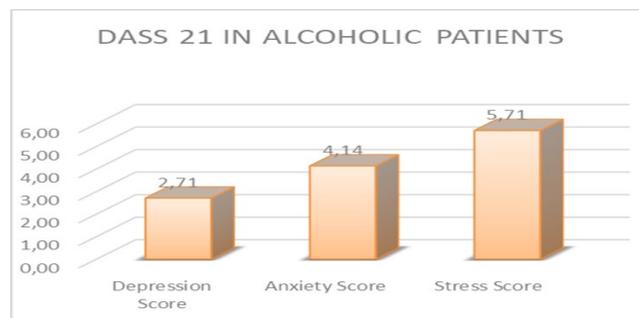


Fig10. DASS-21 results in alcoholic patients

Similarly, we obtained averages of DASS-21 test results in non-alcoholic patients: 5.2 (for the depression score), 6.6 (for the anxiety score) and 5.5 (for the stress score).



Fig 11. DASS-21 results in non-alcoholic patients

Therefore, the comparative results of the DASS-21 test showed that non-ethanolic patients are more depressed and anxious, and alcohol users are more stressed in the acute and subacute stage after a spinal cord injury.

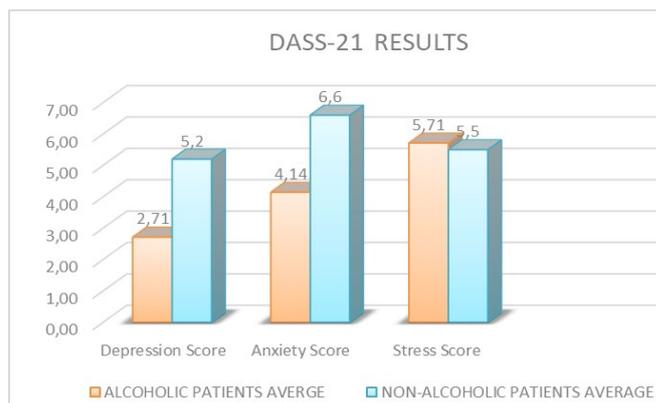


Fig 12. Results of DASS-21 averages in alcoholic versus non-ethanolic patients

Conclusion

Substance abuse (especially ethanol) increases the risk of spinal cord injury and is a serious public health problem. And substance abuse (especially ethanol) is evidence of depressive status.

We studied a group of 17 patients consisting of 6 women (35%) and 11 (65%) men hospitalized after acute spinal cord injury, of which 7 men were abusively consuming ethanol.

We noticed how patients with addictions perceive more diminished: their physical functioning, their physical health limiting, their emotional well-being, their social functioning, pain and changes in their health; and patients with ethanolic dependence perceive more pronounced emotional problems, fatigue and their general health state.

Also, non-ethanolic patients are more depressed and anxious, while alcohol users are more stressed in the acute and subacute stage after a spinal cord injury.

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