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THE THORACIC AND LUMBAR SPINE INJURIES SEEN AT CHU-HJRA MADAGASCAR

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Abstract:-

Thoracolumbar spine injury is a frequent and serious lesion with functional prognosis. The objective of this study was to determine the epidemiological-clinical profile and the therapeutic aspects of thoracic and lumbar spine injuries in Madagascar. This was a retrospective, single centered 3-years study of 98 cases of thoracic and/or lumbar spine trauma hospitalized and managed in the neurosurgery department at Joseph Ravoahangy Andrianavalona Antananarivo Madagascar University Hospital center. During the targeted period, 98 trauma cases were studied, of which 24.39% of the traumatized were between 21 and 30 years old with a clear male predominance of 80.48% (sex ratio 4.1). Etiology is dominated by a drop in 36.72% of cases. It was part of a polytrauma that included head trauma in 58.53%. Clinically, 39.02% of the patients were tetraplegic and the standard radiograph represented the requested radiological tool in 82.92%. The mortality rate was 21.95%. Thoracic and lumbar spine injuries are serious and several Frankel A type neurological deficits are usually irreversible despite rapid management

Keywords: *Paraplegia, polytrauma, Surgery, thoracolumbar trauma.*

INTRODUCTION

Spine injury is a common pathology [1, 2] with a modularly involvement encountered in 15 to 30% of cases [3, 4]. The global incidence is estimated at between 15 and 40 new cases per million inhabitants. It represents in France about 2000 people affected each year; 236 new cases per million inhabitants in India and 1800 new cases per million inhabitants in the United States of America [5, 6]. The trauma of the thoracolumbar spine is part of a polytrauma in 30% of victims [7]. In Madagascar, 70.50% of traumatic spinal injuries are thoracolumbar injuries [8]. The prognosis depends on the initial spinal cord lesions and the speed of their management. The objective of this study was to determine the epidemiologicalclinical profile and therapeutic aspects of thoracic and lumbar spine injuries at "Centre Hospitalier Universitaire Hopital Joseph Ravoahangy Andrianavalona" (CHU-HJRA) Madagascar.

Material and Methods

It was a single-centered, retrospective study of patients treated in the CHU-HJRA Neurosurgery Department for thoracic and lumbar spine trauma for a period of 3 years from July 2012 to July 2015. Our research is focused on the complete records of all hospitalized patients and supported for thoracic and lumbar spine trauma with or without objectified injury to imaging, incomplete records were excluded. The studied parameters were: epidemiology, clinic, paraclinical examinations, treatment, and evolution. Our main means of diagnosis was simple standard radiography with or without a spine scan.

Results

During the targeted period, we collected 98 cases of traumatized thoracic and / or lumbar spine patients. They were observed mainly in young male subjects (**Table 1**) of 65.3% against 34.69% of women, with a sex ratio of 1.88 and an average age of 27.5 years. The etiology of trauma was variable but was dominated by a fall in 36.72% of cases, of which 23.46% occurred at home (**Table 2**). Risk factors are represented by alcohol intake (14.63%) and speeding (4.87%). Associated lesions were predominantly cranial in 24.48% of cases followed by thoracic lesions 12.24%, fracture of the limbs in 11.22%, abdominal involvement in 5.1%, and fracture of the pelvis in 3, 06%. The delay between trauma and hospital management was variable with duration of less than 6 hours in 42.85% of cases (Figure 1). Among the traumatized, 8 wounded were referred by a general practitioner, 3 were referred by an orthopedist, 2 patients by a rheumatologist and the rest of the patients went through the emergency department of the hospital. Lesions mechanisms are dominated by axial compression (48.97%) secondary to a fall (**Table 3**). The victims were transported by personal cars in 37.71%; 26.53% by cabs and the remaining 35.76% by various means. On clinical examination, 59.18% of the patients were asymptomatic, 3.06% had tingling, and 2.04% had isolated symptoms of cramp. For motor-deficient patients (39.69%), they were classified according to the FRANKEL classification (**Table 4**). Our diagnosis was essentially simple standard radiography performed in 84.69% of cases, followed or not by a CT scan in 18.36%, no MRI was performed. After imaging, 29.59% of cases was normal and the rest, one or more associated lesions were objectified (**Table 5**). The lesion topography was variable, on the thoracolumbar hinge in 30.61%, thoracic 13.26% and lumbar involvement in 26.53% of cases. Therapeutically, the 27.55% of patients were placed on non-steroidal antiinflammatory drugs, the 22.42% on corticosteroids. Surgery is indicated in 28.27% of cases among the 70.41% radiological lesions. The techniques used vary according to the type of anatomopathological lesion objectified by imaging: decompressive laminectomy isolated in 53.57% and 46.42% undergoing surgery laminectomy and posterior osteosynthesis (7 cases in long assembly, 6 cases in short assembly). The rest is treated by immobilization with a simple custom corset. For social reasons, 10.2% of patients discharged despite the need for surgery. The mortality rate is 3.06% related to associate cranial lesions. For patients with sensory and / or motor deficit (39 cases), 9 patients had a complete improvement, 14 injured a partial improvement, 8 had no improvement and 8 patients were lost to follow-up at 1 year follow-up.

Table 1: Patient Distribution by Age

Age	Number (n=98)	Percentage (%)
0 à 10	3	3,06
11 à 20	10	10,2
21 à 30	25	25,51
31 à 40	16	16,32
41 à 50	19	19,38
51 à 60	16	16,32
< 60	9	9,18

Table 2: Distribution by etiology of trauma

Etiology of trauma		Number (n=98)	Percentage (%)
Traffic accident	Motorist	13	13,26
	cyclist	7	7,14
	pedestrians	9	9,18
Fall	Work accident	13	13,26
	Domestic accident	23	23,46
Aggression	White weapon	10	10,20
	Firearm	3	3,06
Sports accident		2	2, 04

Table 3: Distribution of trauma by mechanism

Mechanism	Number (n=98)	Percentage (%)
Axial compression	48	48,97
Hyper flexion	7	7,14
Hyper extension	5	5,1
Rotation	2	2,04
Undetermined	36	36,73

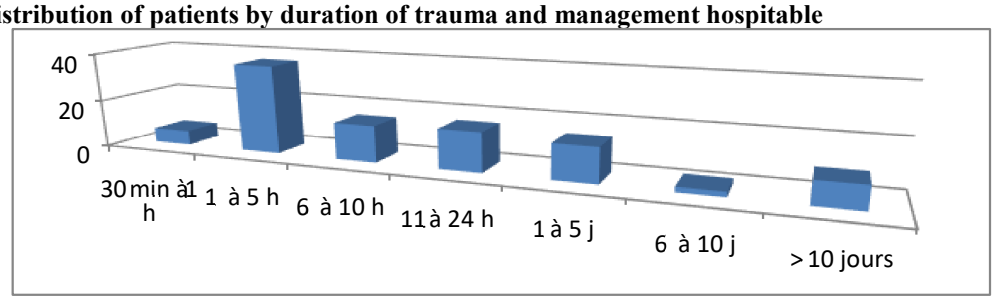
Table 4: Percentage of Patients with neurological deficit (34 cases) according to Frankel's Classification

Frankel's classification	Number (n=98)	Percentage (%)
A	19	55,88
B	4	11,76
C	8	23,52
D	4	11,76

Table 5: Distribution of trauma according to the lesions objectified to imaging

Lesions	Number (n=98)	Percentage (%)
Corporal breakdown	45	45,91
Fracture-dislocation	18	18,36
straightness	2	2,04
Isolated dislocation	1	1,02

Figure 1: Distribution of patients by duration of trauma and management hospitable



Discussion

The predominance of the young male subject is demonstrated both in our series and in the literature [9,10]. The etiology of trauma was variable but was dominated by a drop in 36.72% of cases in our study which is similar to the literature [11]. The associated lesions were mainly cranial in 24.48% of cases, in a cohort study done by Bouyer in France in 2011 [7], 30% of traumas were in the context of a polytrauma. The length of time between trauma and hospital care remains much higher compared to developed countries such as France [12], and can be compared to other African countries, namely 64-86h in Senegal [13], 10h in South Africa [14].] and 2.5 days in Nigeria [15]. In our study 59.18% of patients were asymptomatic, 39.69% had a motor deficit of which half (55.88%) had a severe deficit, in the literature [7] 28% of patients have a neurological impairment. The simple standard radiograph is performed in 84.69% of the cases and the scanner was

the imaging par excellence requested in 18.36%, any patient could benefit from an MRI so we could not pose with certainty the diagnosis of a modularly contusion that is MRI diagnosis [16,17].In our study a corporal compression (45.91%) followed by a fracture-dislocation (18.36%) was the most frequently encountered lesion sitting on the thoracolumbar hinge in 30.61%, thoracic 13.26% and lumbar involvement in 26.53% of cases, in the literature [16] 64.3% of lesions are thoracolumbar and 21.4% thoracic. The absence of sufficient CT data did not allow us to classify the fracture according to Magerl [18] and currently there is a new classification of thoraco-lumbar lesions [19]. In our study, 27.55% of patients were put on non-steroidal antiinflammatory drugs, the 22.42% on corticosteroids; in the literature there are three major studies on the use of methylprednisolone-based corticosteroids in spinal cord trauma, including the first prospective multicentre study NASCIS 1 [20] and the first randomized trial involving a placebo group of NASCIS 2 [21] and the last NASCIS 3 [22], and at the end of all these studies the effect of the administration of methylprednisolone in the acute phase of a spinal cord injury is not demonstrated (neither its presence nor its absence) if this effect exists, it is modest; Infectious complications and hyperglycemia induced by corticosteroids are potentially serious risks according to MAPAR 2002. The surgical technique used depends on the anatomopathological type of the objectified lesions and the neurological state of the patients [23], the radiological parameters orients the operative decision [24]. The rapidity of performing a decompression-type surgical procedure plays a role directly in the functional prognosis of patients [25].

Conclusion

Thoracolumbar spine trauma is serious and poses a social problem because of the burden imposed by the deficit patients, paraplegics in particular. The reduction between the duration of the trauma and the hospital care especially the realization of a surgical gesture if necessary is paramount. Severe Frankel A-type neurological deficits are usually irreversible despite rapid management.

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