

## Original Research Article

# Predictors of failure in non-operative management of blunt liver trauma

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## ABSTRACT

**Background:** Liver is the most injured organ in abdominal trauma. Nonoperative treatment (NOM) is increasingly being adopted as the initial management strategy. The aim of this study was to evaluate the results of operative and conservative management of patients with blunt liver injury treated in a single institution.

**Methods:** A retrospective study, analyzing patients admitted from 2011-2015 with the diagnosis of liver trauma, was performed. The patients were classified according to the intention to treatment: Group I, NOM; Group II, operative management and Group III, fail in NOM management. We analyzed demographic data, injury classification, associated injuries, transfusions, shock, liver function test, lactate level, and mortality rates.

**Results:** Over the five years period, 68 patients were recorded, 45 were successful (S-NOM) and 18 were failed (F-NOM). No differences in age, sex or initial hemodynamics were found between S-NOM and F-NOM. The F-NOM patients were more seriously injured, more acidotic, required transfusion, had more fluid collection at FAST, had worse transaminase level and higher mortality rate. Grade of liver injuries was the independent risk factor of failure in nonoperating management of blunt liver trauma with the cut-off point is 3.66.

**Conclusions:** Non-operative management of blunt liver injuries is successful in some cases. Patients with more severe injury tend to have an operation. High-grade blunt liver injuries always present with a worse condition and require an operation.

**Keywords:** Blunt liver injuries, Non-Operative Management, Prognostic factors of failure

## INTRODUCTION

Liver injuries are common in both blunt and penetrating trauma despite its relatively hidden location behind the subcostal region.<sup>1</sup> The majority of injuries are superficial or minor and require no surgical repair.<sup>2-4</sup> Road traffic crashes and antisocial, violent behavior account for the majority of liver injuries.<sup>2</sup> Liver trauma is the second most frequent event during an abdominal trauma and is the leading cause of death (20-40%) in these cases.<sup>5</sup> Most liver injuries (>85%) involve segments 6, 7, and 8 of the liver, due to simple compression against the fixed ribs,

spine, or posterior abdominal wall. Also, pressure through the right hemithorax may propagate through the diaphragm, causing a contusion of the dome of the right lobe of the liver.<sup>1,4,5</sup> Furthermore, ligamentous attachment of the liver to the diaphragm and the posterior abdominal wall can act as sites of shear forces during deceleration injury.<sup>5,6</sup> Associated injury to other organs increases the risk of complications and death.<sup>1</sup>

The management of liver injury has evolved greatly over the last decade. There have been many technical advances in medicine, which now allows us to better diagnose and