Abdominal Upper Gi Injury in 416 Polytraumatized Patients

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Abstract

Purpose: The relevance of abdominal upper GI trauma in severely injured patients within a large collective has not been thoroughly analyzed yet. This study aims at assessing the prevalence of abdominal upper GI trauma in relation to the outcome and the currently established algorithm of treatment.

Methods: 148,498 patients from the TraumaRegister DGU® of the German Trauma Society (TR-DGU) (2002-2013) were analyzed retrospectively. All patients with an "Injury Severity Score" (ISS) ≥ 9, direct admission to a trauma center, age ≥ 16 and an abdominal injury (AISabdomen ≥ 2) were included. Patients with abdominal trauma (AISabdomen ≥ 2) were compared to patients with added abdominal upper GI trauma (AISabd. upper GI ≥ 2/4/5).

Results: 13,491 (19.7%) of 148,498 patients had documented abdominal injuries. 416 (3.1%) patients with abdominal injury additionally showed an abdominal upper GI injury (AISabdomen ≥ 2, AISabd. upper GI ≥ 2/4/5) and were analyzed in dependency of the classification of the American Association for the Surgery of Trauma (AAST) organ-severity score. AAST-abdominal upper GI (stomach and duodenum): II: 1.1%, III: 1.4%, IV/V: 0.6%. Patients with leading abdominal upper GI injury (grade IV and V) thereby showed a significant increase of mortality (IV/V: 16.2%).

Conclusions: The results presented here show the prevalence and the outcome of abdominal upper GI injury in a large collective within the TR DGU for the first time.

Keywords

Trauma, Abdominal upper GI injury, Mortality, Prognosis

Introduction

In multiple-injury patients, the stomach and duodenum are part of the injury pattern to varying degrees in around 0.5-2% of the documented cases [1]. In industrialized countries, abdominal injuries are mostly caused by a blunt accident mechanism [2]. And yet, the abdominal upper GI injury is frequently not directly life-threatening. In 30-40% of the cases, complications occur, which may lead to a significant reduction in quality of life, e.g. due to nutrition problems and/or in chronic post-traumatic/operative adhesions, particularly in young patients [3]. Due to the partly retroperitoneal position of the duodenum and its close proximity to large vessels, associated injuries are generally severe. Furthermore, with increasing severity of the abdominal upper GI injury, other organ systems are also involved so that more than 90% of the patients exhibit at least one other injured abdominal organ [4-6].

Since in-hospital mortality results from the cumulative impact of all injured organs, these impacts the increase in the total injury severity scores (ISS). The mortality rate after abdominal upper GI trauma documented in the literature accordingly has a wide range and varies between around 10 and 25%. A distinction is made here between early- stage mortality, mostly due to blood loss, and late-stage mortality [7]. Late-stage mortality is not infrequently based on secondary complications of the intensive care treatment, which may lead to sepsis as well as multiple organ failure in connection with the functional failure after trauma [8]. The actual specific significance of abdominal upper GI injury for the onset of such complications, however, is not yet fully understood in this context.

It must be noted, however, that a clear paradigm shift concerning the surgical treatment of abdominal injuries has occurred in the past few decades [9,10]. The conservative treatment of abdominal injuries has increasingly become the method of choice in hemodynamically stable patients after blunt trauma as a result of both the increasing multidisciplinarity and the corresponding interventional, mostly radiological but also more advanced conservative treatment options. Angioembolization may have success rates of up to 70-80% in various traumatic and nontraumatic intra-abdominal hemorrhages; but this is not yet a standardized procedure in this context in Germany.


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