

## Management and outcome of pediatric splenic injuries

**Background:** Non-operative management (NOM) of splenic rupture in children is generally accepted. However, considerable variations in management exist. NOM has become the standard care for hemodynamically stable patients with blunt splenic injuries without other indications for abdominal surgery. The patients are commonly managed with strict bed-rest and close monitoring of vital signs in the hospital.

**Aim:** This large European study was conducted to analyse the choice of management of pediatric splenic injuries and to evaluate the implementation of the guidelines proposed by the American Pediatric Surgical Association (APSA) in a level 1 trauma centre.

**Methods:** The charts of pediatric patients (age < 18) admitted or transferred to a level 1 trauma centre with blunt splenic injury between 2003 and 2019 were retrospectively assessed. Information pertaining to the demographics, mechanism of injury, injury description, hemodynamic stability, medical intervention and outcomes were analysed. All the results were compared with international literature.

**Results:** Fifty-nine patients (age  $10.4 \pm 4.17$  years, 64.4% male, 35.6% female) were identified with blunt splenic injury. Forty-nine percent were isolated splenic injury, 25% was caused by motor vehicle accidents, 12% by bicycle accidents and 32% by falls. Seventy-six percent of our patients were treated with bed rest with a mean hospital stay of  $9.2 \pm 5.39$  days. Ten patients (17%) needed surgery (5 of which had a splenectomy) from which 7 of them were hemodynamically unstable. One patient developed an asymptomatic splenic cyst.

**Conclusion:** The treatment of choice for pediatric splenic injuries after blunt trauma is continuously shifting towards non-operative management. This study, together with international literature has proven that NOM is the best choice of management in low-grade splenic injuries. We argue that NOM can also be implemented for high-grade splenic injuries, but that hemodynamic stability is the determining factor for this choice. Embolization has shown to be a competent procedure as an adjunct to non-operative management in high-grade splenic injuries, and may prevent patients from splenectomy and its corresponding complications. An overall abbreviation of the bed rest protocol should be applied in the Netherlands as the protocol has been proven to be safe and to reduce costs.