Update in Management of Blunt Abdominal Trauma

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List of Abbreviations

AAST	American Association for the Surgery of Trauma
ACS	Abdominal Compartmental Syndrome
ACS	American College of Surgeons
ACTH	Adreno Cortico Trophic Hormone
ADH	Anti Diuretic Hormone
ANP	Atrial Natriuretic Peptide
ARDS	Adult Respiratory Distress Syndrome
ATLS	Advanced Trauma Life Support
BAT	Blunt Abdominal Trauma
BHT	Blunt Hepatic Trauma
BMV	Bag-Mask Ventilation
BTLS	Basic Trauma Life Support
CBD	Common Bile Duct
CEUS	Contrast Enhanced Ultrasound
CNS	Central Nervous System
CT	Computed Tomography
CVP	Central Venous Pressure
DL	Diagnostic Laparoscopy
DPL	Diagnostic peritoneal Lavage
EAST	Eastern Association for the Surgery of Trauma
ERCP	Endoscopic Retrograde Cholangio-Pancreatography
FAST	Focused Assessment with Sonography for Trauma
GSC	Glasgow Coma Scale

HPF	High Power Field
HIDA	Hydroxyiminodiacetic acid
IAP	Intra-Abdominal Pressure
IVC	Inferior Vena Cava
IVU	Intravenous Urography
MRCP	Magnetic Resonance Cholangio-Pancreatography
MRI	Magnetic Resonance Image
MS-CT	Multislice computed tomography
MVC	Motor vehicle crash
NOM	Non Operative Management
NPA	Nasopharyngeal airway
OIS	Organ Injury Scale
OPA	Oropharyngeal airway
PTC	Percutaneous Transhepatic Cholangiography
PBD	Percutaneous Biliary Drainage
PSAE	Proximal splenic artery embolization
RTS	Revised Trauma Score
TSA	Total Serum Amylase
UPJ	Uretero-Pelvic Junction
VAC	Vacuum-Assisted Closure
VATS	Video-Assisted Thoracoscopic Surgery
WBC	White Blood Cell

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INTRODUCTION

Trauma is a global public health problem and the dominant cause of morbidity and mortality, particularly in industrialized countries. Despite major improvements in the management strategies for multiple injured patients in recent decades, trauma remains the primary cause of death for young individuals under 45 years of age. 10% of deaths result from abdominal injuries.

(Minino et al., 2007)

Nearly three quarters of patients involved in road traffic accident and falling from heights associated with blunt mode of injury. Almost one fifth of these patients had abdominal injury .Blunt abdominal trauma **(BAT)** may result in injury to intra-abdominal organs by two discrete mechanisms of injury: direct compression forces and deceleration forces resulting in shearing forces. These forces occur either alone or combined**.**

(Jansen and Loudon, 2009)

The initial evaluation of a trauma patient consists of a rapid primary survey aimed at identifying and treating immediately life-threatening problems. Evaluation and decision making are far more difficult in blunt trauma than in penetrating trauma. More energy is transferred over a wider area during blunt trauma than from a gunshot wound or a stab wound. As a result, blunt trauma is associated with multiple widely distributed injures.

(**Ryb et al., 2007**)

The presentation of blunt abdominal trauma ranges from the dramatic (such as a patient involved in a road traffic collision or explosion, presenting with profound haemodynamic instability due to major haemorrhage) to the subtle, early signs of an otherwise well patient with a hollow viscus injury following relatively trivial and localized trauma. Both investigative and management strategies must take into account these widely different presentations, and their different clinical priorities.

(Jansen and Loudon, 2009)

Diagnosis of intra-abdominal injury and, equally importantly excluding injury by clinical examination is unreliable. The confirmation of the presence or absence of injury relies on the use of diagnostic procedures. Haematology and chemistry laboratory tests are of limited use in the management of the acutely traumatized patient. Clinicians should consider them adjuncts to diagnosis and not substitutes for clinical assessment in blunt abdominal trauma. **(Isenhour and Marx, 2007)**

Ultrasonography is the investigation of choice in haemodynamically unstable patients while CT (Computed Tomography) imaging is the diagnostic tool of choice in haemodynamically stable patients. CT scans can provide a rapid and accurate evaluation of the abdominal viscera, retroperitoneum and abdominal wall .Diagnostic peritoneal lavage (DPL) has a role as a second-line investigation in the diagnosis of hollow viscus injury, particulary in neurologically compromised patient. **(Jansen et al., 2008)**

Strategies for managing BAT range from non-operative management, to minimally invasive techniques such as angio-embolization, primary definitive surgery and damage control surgery .Nowadays conservative treatment is preferred in blunt abdominal trauma as 85%-98% of hepatic injuries and 60-80% of splenic injuries and virtually all renal injuries can be managed conservatively with success rates approaching 95%.

(**Schroeppel and Croce, 2007**)

Despite this development, a considerable number of patients with catastrophic intra-abdominal injuries will continue to require immediate and skilled surgical intervention combined with expert resuscitation.

(**Jansen and Loudon, 2009)**

The application of damage control to the trauma patient has come from the realisation that minimising surgery until the physiological derangement can be corrected is the best way of improving outcome.

(Loveland and Boffard, 2004)

AIM OF THE WORK

This work aims to highlight the updated and reasonable modalities of management of patients with blunt abdominal trauma, in order to improve the prognosis and decrease morbidity and mortality.