The tertiary survey by Trauma Nurses is both reliable and accurate

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Objectives

- Outline the concept of the tertiary survey
- Identify who should complete the tertiary survey
- Discuss incidence of missed injuries
  - Findings and classification of injuries
• The concept of the tertiary survey was introduced in 1990 by Enderson and team
• The patient cohort were re-examined after stabilisation to confirm initial diagnosis and to ascertain any delayed diagnoses

The Tertiary Survey
The current approach to trauma management is based on the Advanced Trauma Life Support (ATLS) principles

- Primary survey
- Secondary survey

The Tertiary Survey
Why is this needed?
Comprehensive assessment

Due to life threatening injuries

Uncooperative/ intoxicated patients

Unresponsive patients

TRAUMA TERTIARY SURVEY: EXAMINATION FINDINGS

HEAD AND NECK
- Eyes
  - Bruising
  - Acuity
  - Pupils
  - Movement / Diplopia
- Mouth
  - Malocclusion
  - Dental problems
- Ears
  - CSF leak
  - Hearing Loss

CHEST
- Inspect
  - Wounds
  - Bruising
  - Swelling
  - Flail – paradoxical movement
- Palpate
  - Subcutaneous emphysema
  - Clavicle
  - Sternum
  - Ribs
- Auscultate

ABDOMEN / PELVIS
- Inspect
  - Wounds
  - Bruising
  - Distension
- Palpate
  - Tenderness
  - Masses
- Auscultate
  - Bowel sounds

Scalp and Face
- Wounds
- Bruising
- Tenderness
- Neck
- Wounds
- Haematoma
- Swelling
- Crepitus

BACK / FLANK
- Wounds
- Bruising
- Tenderness

THORACOLUMBAR SPINE
- Haematoma
- Tenderness

EXTREMITIES
- UPPER LIMBS
  - Bruising / Deformity
  - Tenderness
  - Movement
  - Power
  - Reflexes
  - Sensation
  - Pulses

LOWER LIMBS
- Bruising / Deformity
- Tenderness
- Movement
- Power
- Reflexes
- Sensation
- Pulses
• Is said to be the nemesis of the Surgeon

Missed Injuries
Who should perform the Tertiary Survey?

- Medical Officers?
- Nurses?
Nursing has changed
Thompson and Greave (2008) conducted a literature review on the phenomenon of missed injuries in the trauma population. They identified an incidence of missed injuries between 1.3 and 41.7%. The mean incidence of delayed diagnosis of 12.95%.
• A retrospective review was conducted on trauma patients admitted to the Royal Brisbane and Women’s Hospital over a four year period with an identified delayed diagnosis
• A modified Clavien classification was used to reflect the significance of each delayed diagnosis

Methodology
• Within the study period:

• 6791 patients were admitted
• 2997 patients underwent a tertiary assessment
• 660 delayed diagnoses were identified
• 10% had delayed diagnosis

Results
Results

Method of Diagnosis

- Clinical Findings
- Radiological Findings
• The modified Clavien Classification used:
  • I: No change to management
  • II: Change with conservative management (analgesia, cast, longer LOS)
  • IIIa: Further imaging required
  • IIIb: Operative/interventional management necessary
  • IV: Major consequence or complication morbidity from delayed diagnosis
  • V: Death caused by delayed diagnosis

Classification of delayed diagnosis
Classification of delayed diagnosis

Delayed Diagnosis by classification

Classifications:
- I
- II
- IIIa
- IIIb
- IV
- V

Years:
- 2011
- 2012
- 2013
- 2014
• Breakdown of delayed diagnosis based on the modified Clavien classification:
  • I: 79
  • II: 402
  • IIIa: 64
  • IIIb: 18
  • IV: 0
  • V: 0

Classification of delayed diagnosis
Apart from the clinical relevance of completion of the injury list, these delayed diagnosis can:

- Change management
- Improve quality of care
- Potentially increase ISS

Impact of clinical findings
• Nurses are effective at performing comprehensive Tertiary Surveys
• Ultimately it is a collaborative process