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SHSS6067

Sports Trauma Management Exposure, Environment and Everything else

*Trawsnewid Addysg; Trawsnewid Bywydau
Transforming Education; Transforming Lives*



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Musculoskeletal Injuries

- Safe Approach
- Response
- Airway
- Breathing
- Circulation
- Disability
- Exposure, Environment and Everything Else

Musculoskeletal Injuries

SABCDE would detect significant blood loss from limb fracture

- Closed femur 1000-1500ml (more with pelvic)
- It could double with open fracture
- Class III haemorrhagic shock
- Treatment
 - Fluids as per circulation

Musculoskeletal Injuries

Secondary survey

- Deformity
- Pain
- Tenderness on palpation
- External haemorrhage
- Crepitus
- Swelling
- **Neurovascular compromise**

Limb Threatening Injuries

Fracture (#) Types

- Closed - clean break, no complications
- Open - Skin broken, possible protusion, infection risk
- Complicated - neurovascular status has been compromised
- Green Stick - Bone split not severed. Children. Not to be missed
- Stress # - Repetition. Microfracture eventually lead to bone break

Complications - haemorrhage, nerve and muscle damage, fat embolism, necrosis and infection.

Limb Threatening Injuries

Dislocation and # Dislocations

- Where?
- Dislocation - Patella, Shoulder, Jaw, Thumb, Finger.
 - # Dislocations - Ankle, Shoulder, Jaw

Care must be taken and if in doubt dislocations must be dealt like #'s

- Signs and Symptoms
- Pain
 - Loss/ No Movement
 - Deformity/ Oedema/ Assymetry
 - Shortening of limb
 - Tenderness
 - Crepitus
 - Reduced weight bearing
 - Parathesia

Limb Threatening Injuries

Management

Management SABCDE and MILS would detect significant blood loss from a major limb fracture

Be aware if distracting injury - Keep MILS in place

If ABC ok, move to D and E

If in doubt, Splint them out!

DON'T MOVE THEM - assess first

CONSIDER PAIN RELIEF

- Entenox (if no chest/HI)
- Pentrox (if no HI)
- Oxygen (if no entenox)

Limb Threatening Injuries

Assessment

Check NeuroVascular (NV) Status

Pulse checks - Tibialis posterior, Dorsalis Pedis or Femoral

Neurology - Light touch and muscle contraction

Support and immobilise affected area

- If mis-aligned AND lacking pulse + sensation the limb should be reduced/relocated
- The AIM is to REALIGN

CONSIDER PAIN RELIEF - Entenox/ IV Paracetamol/ IV Tramadol/ Morphine/ Ketamine

RECHECK NV STATUS

ALWAYS REFER TO ED

Xray confirmation

Limb Threatening Injuries



Acute Compartment Syndrome

Where? - Leg and Forearm, occasionally thigh
- Femur # (bleeding into fascia)



Signs and Symptoms?

- Pain
- Pale/Shiny with Swelling
- Pain with PROM
- Parathesia (LATE)
- Paresis (LATE)
- Pulseless (LATE)

MEDICAL EMERGENCY - REFER ED

Complications

- NV deficit
- Ischaemic compartment
- Infection
- Amputation
- Death

Dislocation Management

Shoulder

Check axillary nerve sensation

Military patch

Check Radial Pulse

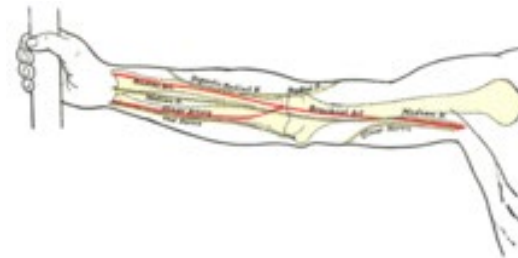


Techniques

- Spaso
- Kocher
- Modified Milch
- Stimson

Elbow

- Check radial nerve
- Check median nerve
- Check ulnar nerve



Wound Management

Types - laceration/contusion/puncture/bites/degloving/abrasion/
Gunshot

NOTE - Infection worse in Legs/Feet then Hand/Arms then Head

Question: Is the underlying structure damaged?

Neurovascular status or Tendon Injury/ Dirty

Management STOP BLEEDING/ Check NV status

Local Anaesthesia

Cleanse the Wound SALINE - Solution to Pollution is Dilution

Close the Wound Anatomical & Functional approximation or
cover with dressing

Give advice - Review - Manage infection risk

DONTs - Close after 6hrs/ infection/ Stab wound/ open #/ specific areas/
peritoneal tissue/ crush injuries

WATCH for Inadine and Chloramphenicol



Location	Suture	Removal
Scalp	2/0 or 3/0 absorbable or non absorbable glue or staples	7/7
Trunk	3/0 non-absorbable	7-10/7
Limbs	4/0 non-absorbable	7-10/7
Hands	5/0 non-absorbable	7-10/7
Face	6/0 non-absorbable	3-5/7
Lip/Tongue/Mouth	6/0 absorbable	
Joint surface	3/0 non-absorbable	10-14/7

Medical Emergencies

ASTHMA

Signs and Symptoms

Wheeze/ Breathlessness/
Chest Tightness with cough

Definition Episodic, reversible narrowing of airways
(Bronchospasm) and excess mucus secretion

Moderate

- Normal speed
- PEFR > 50% of predicted

Acute Severe

- Talks in broken sentences
- PEFR 33-50% of predicted
- Tachycardia > 110bpm
- Tachypnoea > 25bpm

Life Threatening

- Silent/ Cyanosis/ 92% Sat < PEFR < 33% of predicted
- Exhausted/ Confused/ Altered consciousness

Medical Emergencies

ASTHMA

Management

CALL FOR HELP

Oxygen NBM 100%
15l/min

SAFE?

Airway - consider oxygen

Breathing - RR, Auscultation (equality)

Circulation

Disability - AVPU

Environment - Inhaler

Medical Interventions

Nebulisers - Salbutamol 5mg Ventolin
and

- Ipratropium - 500mg Atrovent

Steroids - Oral Prednisilone 40-50mg

- IV 100mg Hydrocortisone

Medical Emergencies

HYPOGLYCAEMIA

Definition **Plasma Glucose < 2.5mmol/L (BM)**

Rapid Onset **NEURO** - Confusion, Seizure,
Aggression, hunger, lethargy, coma
AUTONOMIC - Sweat, Tachycardia, Pallor,
Vomit

ABCDEFG - DON'T EVER FORGET GLUCOSE

- If conscious
 - HYPOSTOP/Sweets (10-20g in solution)
- If unconscious
 - Oxygen
 - IM Glucagon 1mg
 - IV 5ml/kg 10% dextrose, Hypostop or Buccal gel/ sugar/ jam

MANAGEMENT - Re-evaluate and Refer

Medical Emergencies

SEIZURES

Definition

- Abnormal, sudden, involuntary muscle clonus caused by:- *Head injury (immediate or delayed), Intracerebral bleed, Hypoglycaemia , Meningitis/ encephalitis, Metabolic disturbance e.g. low sodium, Cerebral Tumour, Epilepsy.*

SYMPTOMS – Preceded by aura (minutes), Generalised or local tonic +/- clonic activity, Urinary +/- faecal incontinence, Tongue biting, Post ictal period (low GCS minutes or hours)

MANAGEMENT

- SAFE approach (do not restrain)
- AIRWAY (Clear, Utilise NP if trismus and Oxygen via NRBM)
- BREATHING (Recheck)
- CIRCULATION
- DEFG (Check BM)

MEDICINES

- Rectal or IV Diazepam 10mcgs OR
- IV Midazolam
- But prepare for respiratory depression/arrest with benzodiazapines

Medical Emergencies

ANAPHYLAXIS An immune response “doesn’t work well.”

Causes - Allergens (Drugs/Latex/Peanuts/Insects/Fish)

SIGNS - Airway (Lip/Tongue/Larynx/Pharynx/Epiglottis Swelling), Breathing (Wheeze), Circulation (Vasodilation/ Hypotension), Skin (angio oedema, urticarial), GI reaction (nausea, vomit, cramps, diarrhoea)

MANAGEMENT

- Protect Airway (inc oxygen NRBM)
- Adrenaline IM 1:1000 Repeated 5mins
- Fluid therapy if hypotensive

MEDICINES

- 5mg Salbutamol Neb, 1mg in 5mls Adrenaline, IV hydrocortisone 200mg and IV Chlorpheniramine 10mg
- Can be Repeated

**Biphasic reaction - Reoccurs < = > the 1st
Without additional exposure**

Medical Emergencies



HEAT ILLNESS

MINOR <40°C temp/cramp/ oedematous/ hyperventilation/
carpopedal spasm/ syncope

TREATMENT - Remove to Cool

- Fan and Spray Luke Warm Water - Cool IV Fluids (Cramp)

MAJOR >40°C confusion/ irritable/ LOC/
Collapse/Seizure/ Extension Posturing/
Tachycardia/ Tachypnoea/ Hypotension/ MI

TREATMENT

- Cool environment
- ABCDE Recheck ABC with Oxygen
- Cool IV Fluids (with no trauma)
- Fan and spray
- Ice Blocks
- Treat rectal/IV Diazepam (seizure)
- Refer to ED
- Do NOT give anti pyretics
- Increased mortality rate 10%

Medical Emergencies



HYPOTHERMIA

CLASSIFICATION Mild 32-35°C, Moderate 30-32°C, Severe < 30°C

SYMPTOMS - Shivering, AF/Dysrhythmias/LOC, Bradycardia, Bradypnoea, Hypotension, VF, Asystole.

MANAGEMENT

Remember 4H 4T

ABCDE

Remove patient and wet clothes

Dry Skin Gently

High Flow Oxygen

Observation (continue)

Careful Handling - Airway adjunct may trigger VF

No Adrenaline til >30 °C

Apply 3rd / 7th / 11th

If in CA

- 3 shocks < 30 °C
for VT/VF

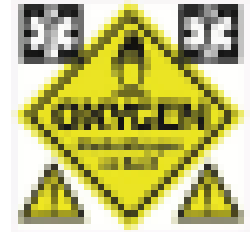
- wait til > 30 °C
for further shocks

If pulse and breathing -
passive and active
external rewarming 30-
38 °C

If < 30 °C active
internal warming can
be used:

- Warm IV Fluid
- Warm oxygen
- Peritoneal lavage
- Extracorporeal rewarming

Medical Gases



Fire and explosion risk

- Must be clearly labelled in storage & cars
- Cylinder valves should not be lubricated with oil/grease

Storage of medical gases

- -7°C or less leads to liquefaction & separation of gases
 - Stored flat at temperatures below 5°C for 24 hours then invert several times before use
- Stored in a well ventilated, dry environment with signage
- Keep away from sources of ignition
- Do not roll cylinders • Aligned in correct dates of replenishment
- Replace when ¼ full & carry spare cylinder

Oxygen

- Hypoxia - Brain injury < 5mins
- NRBM - 15L/min with inflated reservoir
- Fogging of mask
- May require BVM

Contraindications

- COPD



Medical Gases



Entonox

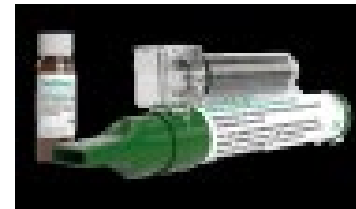
- 50% Nitrous Oxide/ 50% Oxygen
- Self Administered
- Children < 5yrs require spacers
- 4-5 breaths leads to drowsiness

Contraindications

- 34 more soluble than Nitrogen and oxygen
- This can lead to pneumothorax, decompression sickness, bowel obstruction, reduced GCS, MaxiFacial Injuries/ Intoxication

Penthrox

- Alternative to Entenox
- Licenses Anaesthetic
- Used for Chest and Facial Injuries but not HI's
- 1hr of analgesia (20-30min use)
- Can be used abroad



Emergency Action Plan

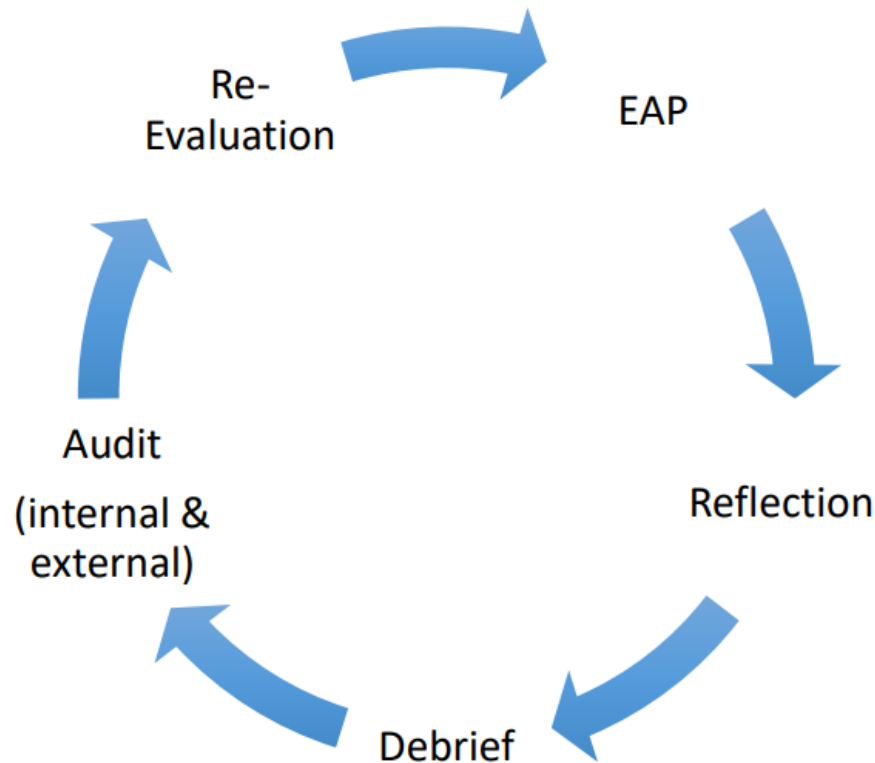
- Developed through a risk assessment that considers
 - Sporting environment
 - Communication
 - Skill retention
 - Team work

Emergency Action Plan

EAPs:-

1. Define roles and minimise errors
2. Regular equipment and maintenance checks
3. Risk Assessment and planning for new environments
4. Effective line of communication
5. Standards for skill training and retention
6. Training home and away venues
7. Reflective practice and learning through clinical governance

Emergency Action Plan



Emergency Action Plan

Benefits of EAPs:-

1. Reduce stress for medical staff
2. Minimise mistakes
3. Minimise equipment failure through checks
4. Improves team working
5. Improves player care
6. Supports deliver of minimum standards of care for ALL scenarios
7. Supports reflective practice, analysis and audit