SETTING South West UK Children’s Burn Centre
FOR STAFF All staff who provide direct patient care for children with severe burns
PATIENTS For Paediatric patients (0 to 16 years) following severe burns (> 20% TBSA)

Introduction
Hyper metabolic state occurs following severe burns and can last for up to 1 to 2 years post burns. This is characterised by hyperdynamic cardiovascular response, increased energy expenditure, accelerated glycogen and protein breakdown, lipolysis, loss of lean body mass and body weight, delayed wound healing and immune suppression. There is sufficient evidence that this response can be modulated by use of drugs such as propranolol and/or oxandrolone.

Purpose of the guidelines
To ensure appropriate evidence based use of Propranolol and/or Oxandrolone in management of hypermetabolic state following severe burns in children.

Scope of the Document
For Paediatric patients (0 to 16 years) following severe burns (> 20% TBSA)

Method of Monitoring or Auditing
Patients commenced on propranolol and oxandrolone will have monitoring as per guidelines documented in the notes in addition to any complications that may develop.

Review and audit dates
A retrospective audit is recommended in six months to assess whether the guidelines have been adhered to and to document any complications.

GUIDELINE

Please note:

1. These medications are to be considered in addition to the routine management of severe burns (please see relevant protocols related to management of burns).

2. Also refer to BNF for children for contra-indications and other prescribing information.

3. Discuss with the burns team responsible for the patient before starting these medications. It should be a joint decision taken by the responsible burns consultant, and/or HDU/PICU consultant or consultant paediatrician, or oncall anaesthetist based on the likelihood and degree of hyper metabolic response.

4. The decision to alter the dose or stop the medications should be made in discussion with the responsible burns consultant and/or HDU/PICU consultant or the oncall anaesthetist or consultant paediatrician.
5. After discharge from inpatient care children should be referred to their local paediatrician for ongoing monitoring of side-effects of these medications. Please also send a copy of this guideline for their use (To be done by the paediatric team contributing to the common discharge summary).

6. After discharge, these children will require Consultant Paediatric follow up in a dedicated outpatient clinic.

**Propranolol:**

Non selective beta-adrenoceptor blocking (beta-blocker) drug

**Benefits:**
Propranolol ameliorates the hyper-dynamic, hyper-metabolic, hyper-catabolic, and osteopenic responses in paediatric patients

**Recommended dose:** 1 to 4 mg/kg/day

**Route:** Enteral

1st 24 to 48 hours post burns: Ascertain baseline heart rate and BP.

Start propranolol when the child is no longer clinically hypovolemic and has a blood pressure that is within normal limits for their age. If these criteria are met, propranolol may be commenced as early as the first day post-injury.

Start at 1 mg/kg/day in three to four divided doses and increase every 24 to 48 hours guided by the heart rate. The aim should be to reduce the baseline heart rate by 20 to 25% but not less than the lower limit of normal heart rate for age.

**Contraindication:** Hypotension, shock, asthma, preexisting cardiac contraindications, cardiac failure, heart blocks, peripheral vascular disease etc.

**Recommended duration of treatment:** At least for one year and up to 2 years guided by the severity of burns and the persistence of hypermetabolic response.

**Suggested follow ups:** 1, 3, 6, 9, and 12 months post burn and then 4 to 6 monthly.

**Monitoring required during follow ups:** blood pressure, heart rate.

At the end of treatment propranolol should be tapered over a period of 1 month.

**Oxandrolone:**

An anabolic agent

Oxandrolone stimulates protein synthesis by binding to androgen receptors

**Benefits:** increased protein synthesis, lean body mass accretion, and muscle strength; improved serum visceral protein concentrations; promoted weight gain; and increased bone mineral content.

**Recommended dosage:** 0.1 mg/kg once to twice daily

(Twice daily for 40% or more body surface area burns)

**Route:** Enteral

**Start:** At 3 to 5 days post burns. Please ensure that the child is on full enteral feeds with adequate protein intake before commencing oxandrolone (check with the dietician).
Recommended duration of treatment: At least for one year and up to 2 years guided by the severity of burns and the persistence of hypermetabolic response.

Suggested follow ups: 1, 3, 6, 9, and 12 months post burn and then 4 to 6 monthly. Continue monitoring for at least 6 months after stopping oxandrolone.

Monitoring required during follow ups:
Height, weight, sexual maturation and signs of virilisation (acne, deep voice, clitoromegaly, pubic hair).
Liver function tests (LFTs) (only if clinically indicated e.g.: Jaundice, hepatomegaly, vomiting and loss of appetite or if having blood tests for any other reason)
Bone age at 1 year and 2 years after starting oxandrolone to look for accelerated bone age.
Stop oxandrolone if signs of virilisation or hepatitis develop. Note transient mild elevation of LFTs can just be monitored.

References


3. Jeschke MG. Norbury WB. Finnerty CC. Branski LK. Herndon DN.


Related Documents

Name of document
DMS address ie http://nww.avon.nhs.uk/dms/download.aspx?did=nnnn

Safety
If there are unusual or unexpected safety concerns (to staff or patient), emphasise them here

Queries
In the first instance please contact the Burns Office on Ext 27910 or via the Burns Bleep holder on Bleep : 6780

Extended until February 2021