

Steroid delivery in croup

Report by Sue Maurice, *senior registrar*
Search checked by Terry Gilpin, *specialist registrar*

Clinical scenario

A 3 year old child attending the emergency department with moderately severe croup. I know that croup responds to steroid therapy, but I want to know whether oral dexamethasone is a better treatment than nebulised budesonide.

Three part question

In a [child with croup] is [oral dexamethasone better than nebulised budesonide] at [reducing length of hospital stay and reducing croup score]?

Search strategy

Medline 1966 to 12/97 using the OVID interface. {[exp croup OR croup ti,ab,sh OR laryngotracheitis. ti,ab,sh OR laryngotracheobron-

chitis ti,ab,sh] AND [exp budesonide. ti,ab,sh OR dexamethasone. ti,ab,sh]}

Search outcome

Sixty four papers found of which 63 irrelevant; the remaining paper is shown in table 3.

Comment

There is no significant difference in the clinical effectiveness of oral and nebulised steroids in croup. The effect of simple humidification has not been accounted for in this study.

Clinical bottom line

Either oral dexamethasone or nebulised budesonide can be used to good effect in moderately severe croup. Dexamethasone is currently much cheaper.

1 Geelhoed GC, Macdonald WBG. Oral and inhaled steroids in croup: a randomised placebo controlled trial. *Pediatr Pulmonol* 1995;20:355-61.

Table 3

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Geelhoed and Macdonald, 1995, Australia ¹	80 children (5-158 months) randomised to receive budesonide dexamethasone or placebo	PRCT	Duration of hospitalisation Time to croup score less than 1	Significantly shorter for both steroid groups (12h) v placebo (20h) Significantly shorter for both steroid groups (2-3h) v placebo (8h)	

PRCT=prospective randomised controlled trial.

Haematoma block versus intravenous regional anaesthesia in Colles' fractures

Report by Simon Carley, *clinical fellow*
Search checked by Lesley Bethune, *specialist registrar*

Clinical scenario

A 71 year old women presents to the emergency department after a fall on the outstretched hand; x rays reveal a Colles' fracture requiring manipulation. Having worked in several different departments you have experience of reducing these fractures with either Bier's block or a haematoma block. You wonder which is best for your patient.

Three part question

In [elderly patients with uncomplicated Colles' fractures] is [Bier's block or haematoma block] better at [reducing pain during manipulation, reducing the need for multiple manipulations and improving long term function].

Search strategy

Medline 1966 to 01/98 using OVID interface. {[exp colles fracture OR exp wrist injuries OR

colles. ti,ab,sh] AND [biers. ti,ab,sh OR haematoma ti,ab,sh OR exp nerve block OR exp anesthesia, intravenous OR regional anesthesia. ti,ab,sh OR exp local anesthesia OR local anesthesia. ti,ab,sh]}

Search outcome

Forty six papers found of which four were of sufficient quality for inclusion; the remaining papers are shown in table 4.

Comment

Pain and the need for remanipulation are very relevant patient outcomes but long term function is only addressed in one paper. The use of grip strength as an indicator of wrist function is only a crude assessment and further work is needed. Clearly there are other methods of reducing Colles' fractures (sedation, general anaesthesia, nerve blockade, etc) which have not been addressed in this paper. However, Bier's block and haematoma block are the two most common methods of reducing this fracture in the UK with an increase in the

proportion of department using haematoma block between 1989 and 1994 (see Cobb and Houghton).

Clinical bottom line

On the best evidence available at the present time intravenous regional anaesthesia (Bier's block) is preferable to local anaesthesia (haematoma block) for the reduction of uncomplicated Colles' fractures in the elderly.

- 1 Kendall JM, Allen P, Younge P, *et al.* Haematoma block or Bier's block for Colles' fracture reduction in the accident and emergency department—which is best? *J Accid Emerg Med* 1997;14:352–6.
- 2 Abbaszadegan H, Jonsson U. Regional anaesthesia preferable for Colles' fracture. Controlled comparison with local anaesthesia. *Acta Orthop Scand* 1990;61:348–9.
- 3 Wardrope J, Flowers M, Wilson DH. Comparison of local anaesthetic techniques in the reduction of Colles' fracture. *Arch Emerg Med* 1985;2:67–72.
- 4 Cobb AG, Houghton GR. Local anaesthetic infiltration versus Bier's block for Colles' fractures. *BMJ* 1985;291:1683–4.

Table 4

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Kendall <i>et al</i> , 1997, England ¹	150 patients with Colles' fractures that were either angulated more than 15 degrees or shortened more than 2 mm, randomised between Bier's block and haematoma block	PRCT	Median pain scores: Administration of block Manipulation Discharge Remanipulation rate Time in department Radiological outcome (angulation)	Less painful with Bier's Less painful with Bier's Less painful with Bier's Less with Bier's No difference Better with Bier's	Data missing in 8 patients, no long term follow up
Abbaszadegan and Jonsson, 1990, Sweden ²	99 consecutive patients with Colles' fractures requiring manipulation, randomly assigned into treatment groups	PRCT	Pain: During manipulation At 2 months At 3 months At 6 months Grip strength at 2, 3, and 6 months Range of wrist motion Radiographic changes	Less painful with Bier's No difference No difference No difference No difference No difference Better with Bier's	Randomisation procedures are not explicit, inadequate basic data reporting, no account of "handedness" made in assessment of grip strength
Wardrope <i>et al</i> , 1985, England ³	79 patients aged over 45 with Colles' fracture, randomised between Bier's block and haematoma block	PRCT	Pain during manipulation Radiographic changes Need for remanipulation	Less painful with Bier's No difference Less with Bier's	Questionable randomisation, some missing data
Cobb and Houghton, 1985, England ⁴	100 consecutive patients with uncomplicated Colles' fracture	PRCT	Pain: Manipulation First few hours	Less Less painful with Bier's No difference	Randomisation procedures are not explicit, inadequate basic data reporting

PRCT=prospective randomised controlled trial.