

Comment(s)

This is the only paper identified that compares morphine and diamorphine in this clinical situation. The doses were fixed.

► CLINICAL BOTTOM LINE

There are no significant clinical differences between diamorphine and morphine in patients with chest pain.

Scott ME, Orr R. Effects of diamorphine, methadone, morphine, and pentazocine in patients with suspected acute myocardial infarction. *Lancet* 1969;i:1065-7.

Type of oral corticosteroid in mild to moderate croup

Report by **A Corfield**, *Specialist Registrar*

Checked by **S Teece**, *Clinical Research Fellow*

Abstract

A short cut review was carried out to establish whether oral dexamethasone is better than oral prednisolone at improving outcome in children with mild to moderate croup. Altogether 139 papers were found using the reported search, of which none presented any evidence to answer the clinical question. It is concluded that there is no evidence available to answer this question. Further research is needed.

Clinical scenario

A 3 year old boy arrives in the emergency department in the early hours of the morning. His mother reports that he has been unwell for 24 hours with a barking cough. On examination he is well and active but has stridor at rest. His temperature is normal, there is no indrawing and oxygen saturations are normal. You know that oral corticosteroids reduce the length of illness and need for hospital admission but wonder whether to use oral dexamethasone or oral prednisolone.

Three part question

In [patients with mild to moderate croup] is [oral dexamethasone better than oral prednisolone] at [improving outcome]?

Search strategy

Medline 1966-02/03 and EMBASE 1980-02/03 using the OVID interface. [exp prednisolone OR prednisolone\$.mp OR exp prednisone OR prednisone\$.mp OR exp steroids OR

steroid\$.mp OR exp dexamethasone OR dexamethasone\$.mp] AND [exp croup OR croup\$.mp OR exp laryngotracheobronchitis OR laryngotracheobronchitis\$.mp OR exp laryngotracheitis OR laryngotracheitis\$.mp] LIMIT to human AND English.

Search outcome

Altogether 139 papers were identified. None answer the question.

Comment(s)

Croup is a common problem in the paediatric population. Oral corticosteroids are as effective as nebulised corticosteroids and are cheaper. Oral dexamethasone has an effective half life of 48 hours compared with 24 hours for prednisolone. Unfortunately there are no data directly comparing the efficacy of these two treatments.

► CLINICAL BOTTOM LINE

There is no evidence available to answer this question. Local advice should be followed.

Glucagon in tricyclic overdose

Report by **S Teece**, *Clinical Research Fellow*

Checked by **K Hogg**, *Clinical Research Fellow*

Abstract

A short cut review was carried out to establish whether the addition of glucagon to standard treatments improves clinical outcome in patients who have taken an overdose of tricyclic antidepressants. Altogether 31 papers were found using the reported search, of which three presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results, and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Clinical scenario

A 27 year old woman attends the emergency department with a suspected amitriptyline overdose. She has a Glasgow Coma Scale score of 7, is trypsilating, and has a broad complex tachycardia with a blood pressure of 70/30. After intubation and ventilation and sodium bicarbonate she remains tachycardic at 130 although her complexes have narrowed

Table 2

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Ruddy JM <i>et al</i> , 1972, Australia	4 year old ingested about 1000 mg imipramine, episode of PEA 1.5 hours duration	Case report	Cardiac status	Improved with 1 mg boluses glucagon	Case report Patient also received pyridostigmine, sodium bicarbonate, isoprenaline, digoxin, lignocaine and mannitol
Sener EK <i>et al</i> , 1995, UK	25 year old woman. Plasma toxicology - imipramine 3.0 mg/l, desipramine 0.18 mg/l, diazepam 2.9 mg/l, nordiazepam 2.2 mg/l, chlorpromazine 0.3 mg/l, temazepam 0.25 mg/l	Case report	Blood pressure Cardiac rhythm	No response to 1 mg bolus glucagon. 40 mm Hg systolic rise after glucagons No response to 1 mg bolus glucagon. Broad complex reverted to sinus after 10 mg bolus	Multiple drugs ingested in overdose Patient also received sodium bicarbonate, phenytoin and isoprenaline and fluid resuscitation
Sensky PR and Olczak SA, 1999, UK	36 year old OD-admission toxicology dothiepin 2.58 mg/l, desmethyldothiepin 0.51 mg/l, paracetamol 135 mg/l, diazepam 0.33 mg/l, nordiazepam 0.12 mg/l	Case report	Blood pressure Cardiac rhythm	No response to 1 mg bolus glucagon. 30 mm Hg systolic rise after glucagons No response to 1 mg bolus glucagon. Broad complex reverted to sinus after 10 mg bolus	Case report Multiple drugs ingested in overdose Patient also received n-acetylcysteine, adrenaline, noradrenaline, ephedrine, dobutamine, and aminophylline with fluid restriction

somewhat and her blood pressure is still low at 80/40. You have heard that tricyclic overdoses may respond to glucagon and wonder whether there is any evidence for this.

Three part question

In [overdose with tricyclic antidepressants] does [the addition of glucagon to standard treatments] improve [clinical outcome]?

Search strategy

Medline 1966–02/03 using the OVID interface. [(exp antidepressive agents OR exp antidepressive agents, tricyclic OR exp desipramine OR exp amitriptyline OR tricyc\$.af. OR amitriptyline.af. OR amoxapine.af. OR clomipramine.af. OR doxepin.af. OR dothiepin.af. OR imipramine.af. OR lofepramine.af. OR nortriptyline.af. OR trimipramine.af.) AND (exp glucagon OR glucagon.af.)] LIMIT to human AND English.

Search outcome

Altogether 31 papers found, 28 failed to answer the three part question, the three relevant papers are case reports summarised in table 2.

Comment(s)

Although all three patients received multiple treatments the authors state the improvement in condition was immediately after high dose glucagon administration. No reports of failure to respond to glucagon are found in the literature. This is most probably attributable to reporting and publication bias. Further research is required.

► CLINICAL BOTTOM LINE

There is not enough evidence currently available to support the use of glucagon in tricyclic overdose.

Ruddy JM, Seymour JL, Anderson NG. Management of tricyclic antidepressant ingestion in children with special reference to the use of glucagon. *Med J Aust* 1972;1:630–3.

Sener EK, Gabe S, Henry JA. Response to glucagon in imipramine overdose. *J Toxicol Clin Toxicol* 1995;33:51–3.

Sensky PR, Olczak SA. High dose intravenous glucagon in severe tricyclic poisoning. *Postgrad Med J* 1999;75:611–12.

Colourimetric CO₂ detector compared with capnography for confirming ET tube placement

Report by K Hogg, *Clinical Research Fellow*

Checked by S Teece, *Clinical Research Fellow*

Abstract

A short cut review was carried out to establish whether colourimetric carbon dioxide detectors are as reliable as capnometry at verifying tracheal placement of endotracheal tubes after emergency intubation. A total of 69 papers were found using the reported search, of which four presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results, and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Table 3

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Goldberg JS <i>et al</i> , 1990, UK	62 men aged 18–70 years old, ASA I, II and III. Simulated difficult intubation drill, using laryngoscope to increase laryngoscopy grade.	Prospective observational study	3 separate observers recorded time to recognition of tracheal and oesophageal intubation, by observing IR capnography, FEF end-tidal colourimeter, and auscultation respectively.	All three methods confirmed correct positioning in 100% (n=51) cases. Colourimeter and capnograph were faster than chest auscultation. All oesophageal intubations (n=11) confirmed by all 3 methods. One oesophageal intubation gave mild colour change but correctly interpreted.	Study only used haemodynamically stable patients Observers were specialist anaesthetic staff as were those intubating Observers not blinded to other detection methods
Anton WR <i>et al</i> , 1991, USA	60 emergency intubations, out with theatre – respiratory failure n=29, CPR n=9, self-extubation n=7, ET tube change n=6, airway protection n=3. ? other 6	Prospective observational study	Observation of colour change in FEF colourimeter within 6 breaths post intubation. Observation of a positive signal from portable TRIMED IR CO ₂ detector within 6 breaths post intubation	Positive signal of exhaled CO ₂ produced within 6 breaths by 59 of 60 by FEF detector, and 58 of 60 by TRIMED. Of the 9 CPR patients 5 showed a colour change that was "subtle", into the brown range. One patient receiving CPR took 20 breaths before a positive signal was received in either	Doctors were presumably anaesthetists There were no oesophageal intubations
Kelly JS <i>et al</i> , 1992, USA	20 children age 6 months to 8 years undergoing elective anaesthesia	Prospective observational study	Colour change in Fenem CO ₂ detector versus IR capnographer reading in 1. spontaneous mask ventilation 2. post tracheal intubation 10 breaths during each point were monitored	Of total 400 breaths, 398 registered yellow colour in the FEF colourimeter with expiration. This correlated with capnography readings. 2 breaths fell into brown range—both of these during mask ventilation, corrected by mask adjustment 100% in both devices	All patients haemodynamically stable, with optimal intubating conditions There were no oesophageal intubations Participants were specialist anaesthetists Small numbers Not emergency intubation
Puntervoll SA <i>et al</i> , 2002, Norway	14 female patients undergoing general anaesthesia All had both tracheal and oesophageal tubes passed CO ₂ v capnography	Experimental study	Detection of tracheal placement Detection of oesophageal misplacement	In 5 patients with expired air placed in the oesophagus the colourimeter changed colour	