SOCRATES 4 (synopsis of Cochrane reviews applicable to emergency services)

P Gilligan, M Shepherd, G Lumsden, H Law, J Brenchley, G Kitching, A Taylor, A Khan, J Jones, D Hegarty

In this the fourth article of the SOCRATES series we present the second half of the reviews from the Cochrane Database of Systematic Reviews relating to respiratory medicine that the working party felt were of particular relevance to emergency medicine practitioners. The methods of our review and the rationale for forming the SOCRATES working party are as have previously been published.

CORTICOSTEROIDS FOR ACUTE EXACERBATIONS OF COPD
The treatment of acute exacerbations of COPD entails the reversal of bronchospasm, treatment of infection, and reduction of airway inflammation. The role of corticosteroids is evaluated in this review.

Results
Seven randomised controlled trials comparing corticosteroids with placebo were included in this review. All other treatment options were standardised. The outcome measures reported varied considerably between the papers. The most commonly reported outcome, the FEV1, between 6 and 72 hours after treatment, showed no statistically significant difference between the glucocorticoid and placebo treatment. Treatment with glucocorticoid did show a significant benefit in relation to treatment failure and quality of life, but these outcome measures were not reported systematically by the papers.

SOCRATES says
The current evidence suggests that a short course of corticosteroids may decrease the subsequent need for hospitalisation in some patients with exacerbations of COPD.


DOXAPRAM FOR VENTILATORY FAILURE ATTRIBUTABLE TO EXACERBATIONS OF COPD
The emergency department treatment of patients presenting with exacerbations of COPD entails the administration of bronchodilators, corticosteroids, and carefully controlled supplemental oxygenation. Despite these measures, patients may go on to develop respiratory failure. This review assesses the potential role of the respiratory stimulant, doxapram, in these patients.

Results
Only three trials involving 127 patients were included in the review all of which were randomised controlled trials. Doxapram was marginally superior to placebo in preventing deterioration in blood gas indices. One small study suggested that doxapram and non-invasive ventilation were equally effective in terms of blood gas changes, although there were more deaths in the doxapram group.

SOCRATES says
The current evidence suggests that doxapram may improve blood gas indices in the short term. However, as experience of non-invasive ventilation techniques improves, the reliance upon doxapram is likely to become less.


HYPERBARIC OXYGEN FOR CARBON MONOXIDE POISONING
Poisoning with carbon monoxide (CO) remains an important cause of accidental and intentional injury worldwide. Several unblinded non-randomised trials have suggested that the use of hyperbaric oxygen (HBO) prevents the development of neurological sequelae. The objective of this review was to assess the effectiveness of HBO compared with normobaric oxygen (NBO) for the prevention of neurological symptoms in patients with acute CO poisoning.

Results
Three randomised controlled trials of HBO compared with NBO were included in the analysis and outcome data were available on 455 patients. The main outcome measure of interest was the prevalence of persistent symptoms at one month follow up.

SOCRATES says
There is no evidence that unselected use of HBO in the treatment of acute CO poisoning reduces the frequency of neurological symptoms at one month.


FIXED DOSE SUBCUTANEOUS LOW MOLECULAR WEIGHT HEPARINS COMPARED WITH ADJUSTED DOSE UNFRACTIONATED HEPARIN FOR VENOUS THROMBOEMBOLISM
Venous thromboembolic disease (manifest as deep venous thrombosis of the legs and pulmonary embolus) has an incidence of 0.1% per year. Treatment with unfractionated heparin requires monitoring and dose adjustment. Low molecular weight heparins have the benefit that they cause less inter-patient variability in respect to a fixed dose and the theoretical advantage of a lower incidence of haemorrhagic complications.

Results
There were 14 randomised controlled trials, involving 4754 patients, included in the analysis.

SOCRATES says
Low molecular weight heparin can be used safely as standard treatment for the treatment of deep venous thrombosis.
Further evidence is needed before this policy is accepted for patients with pulmonary embolic disease.


CHEST RADIOGRAPHY IN ACUTE RESPIRATORY INFECTIONS IN CHILDREN
Chest radiographs are frequently performed in the assessment of children with acute lower respiratory infections. However, the benefits are unknown.

Results
Only one paper involving 522 patients met the inclusion criteria of the review. The participants were ambulatory children aged between 2 months to 5 years. There were no statistically significant differences between those children undergoing chest radiography and the controls not being radiographed in relation to clinical recovery, subsequent hospital visit within four weeks, or subsequent admission to hospital.

SOCRATES says
The current evidence suggests that in ambulatory children, the routine use of chest radiography in the assessment of lower respiratory tract infection is unnecessary.


GLUCOCORTICOIDS FOR CROUP
Croup is a common cause of upper airway obstruction in children. Although it is a self-limiting illness, it can be a heavy burden on hospital resources, in particular in the emergency department. This review evaluates the role of glucocorticoids in the treatment of children with croup.

Results
Twenty four randomised controlled trials (2221 patients) comparing glucocorticoids with placebo were included in the review. A variety of glucocorticoid preparations and dose regimens were used. Use of glucocorticoids resulted in an improvement in the croup severity score at six hours. There was a decrease in the use of adrenaline (epinephrine) in the glucocorticoid treated group. In addition, there was a reduction in the duration of time spent in the emergency department (in those discharged after treatment) and in the duration of hospital stay in those admitted.

SOCRATES says
The current evidence supports the use of corticosteroids in the treatment of croup in children.


CONCLUSION
We hope the reader has found our synopses relating to the reviews from the Cochrane Database of Systematic Reviews regarding respiratory medicine useful. In the next issue of the journal we will present reviews relating to head and spinal trauma.

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