IV Aminophylline Vs. IV Salbutamol/Terbutaline Table of Results

Key to methodological quality section of table:
RQ = randomisation quality, AC = Allocation Concealment, B = Blinding, MD = Missing Data, SOR = Selective Outcome Reporting.
L= low risk of bias, H = high risk of bias, U = Unclear from published information.

Trial	Population Intervention and Comparison Outcomes	Results	Methodological quality
Hambleton 1979	18 children, aged 1-7 years, requiring intensive hospital treatment for acute asthma 2 groups; IV salbutamol 4 mcg/kg bolus then 0.6mcg/kg/hr for 24 hours; IV aminophylline 4mg/kg immediately then 0.6mg/kg/hr for 24 hours Primary Outcome: A modified clinical severity scoring system	Clinical Severity Score: No significant difference between groups Lung function: Not assessed Admission to PICU: Not reported Time to discharge: Not reported Adverse Effects: A significant trend towards higher heart rates in the salbutamol group	Risk of Bias: Unclear -RQ: L -AC: U -B: U -MD: L -SOR: L Precision: No clear evidence of use of a validated clinical severity scoring system. Sample Size: Data regarding sample size calculations not provided Adverse Effects: Very limited data regarding the methodology of assessment for adverse effects

Trial	Population Intervention and Comparison Outcomes	Results	Methodological quality
Roberts 2003	44 patients, aged 1-16, acute, severe exacerbation of asthma, refractory to combined nebulisers as measured by a limited change in asthma severity score, presenting to district hospitals in the UK 2 groups; IV salbutamol (n=18) received 15mcg/kg bolus; IV aminophylline (n=26) 5mg/kg bolus then 0.9mg/kg/hr Outcomes: Primary Outcome - Change in asthma Severity Score (ASS). Secondary Outcomes - Requirement for supplemental oxygen, time to discharge from hospital, adverse effects.	Clinical Severity Score: There were no significant differences between groups in the clinical severity score (ASS) during the study. Lung Function: Not recorded Admission to PICU: 2 subjects in the salbutamol group and 1 in the aminophylline group required intubation and ventilation. Time to Discharge: The duration of inpatient treatment for the salbutamol group was 1.49 times longer (95% CI 1.06 to 2.10, p=0.02) than the aminophylline group. Adverse Effects: There were no significant differences in the number of adverse events reported in the two groups (22.2% v 36%, p=0.50, Fisher's exact test)	Risk of Bias: Low -RQ: L -AC: L -B: L -MD: L -SOR: L Precision: Clinical severity scoring was assessed using the ASS scoring system. The ASS has been found to have reasonable sensitivity as a tool for predicting the severity of an exacerbation of asthma. Sample Size: Sample size calculated and required numbers of patients recruited Adverse Effects: Limited details regarding the methodology for assessing the presence adverse effects

Trial	Population Intervention and Comparison Outcomes	Results	Methodological quality
Singhi 2011 (Data from table published in Cochrane review)	100 patients, severe, acute asthma. 3 groups: IV magnesium (n=34) 50mg\kg over 20 mins; IV terbutaline (n=33) 10 µg/kg over 30 minutes then 0.1 µg/kg/min for 1 h, IV aminophylline (n=33) 5 mg/kg bolus then 0.9 mg/kg/min for 1 h. Outcomes: PrimaryOutcome - Clinical asthma severity score (ASS) at 1 h. Secondary Outcomes - Adverse effects	Clinical Severity Score: (Treatment success defined as clinical ASS ≥ 4 at 1 h.) Treatment success was noted in 33/34 in magnesium group, 23/33 in terbutaline group and 23/33 in aminophylline group (P < 0.001). Lung Function: Data not available Admission to PICU: Data not available Time to Discharge: Data not available Adverse Effects: 0/34 side effects in magnesium group vs. 2/33 in tebutaline group (symptomatic hypokalaemia) vs. 9/33 in aminophylline group (nausea/vomiting) (P < 0.001).	Unclear from available data
Wheeler 2005 (Data from abstract only)	40 patients, 3-15 years, impending respiratory failure secondary to status asthmaticus 3 groups; IV aminophylline + placebo; IV terbutaline + placebo; IV theophylline and terbutaline combined Outcomes: Change in clinical asthma score, length of stay in PICU, adverse effects	Clinical Severity Score: No significant differences Lung Function: Time to discharge: No significant difference in length of PICU stay. Adverse Effects: Children who received both IV treatments had a higher incidence of nausea	Unclear from available data