Poster Presentations

417 EVIDENCE REVIEW; WHAT IS THE BEST SECOND LINE TREATMENT FOR ACUTE SEVERE ASTHMA IN CHILDREN?SALBUTAMOL, AMINOPHYLLINE OR MAGNESIUM SULPHATE

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Aims To answer the question, in children with acute severe asthma, what is the best second line treatment; intravenous beta2 agonist, Aminophylline or Magnesium Sulphate, (MgSo4).
Methods We searched the literature using the words: Aminophylline/Salbutamol, Magnesium Sulphate/Asthma and child in June 2011).
Results Out of the fourteen articles which were found, only 4 were relevant. The first; an RCT compared IV $MgSo_4$, Terbutaline and Aminophylline in acute severe asthma. Improvement in clinical Asthma severity score (CASS) was used as an outcome measure. They found that MgSo4 is superior with best response and least side effects.

The second study, an RCT, compared a single bolus of Salbutamol to a continuous Aminophylline infusion. No significant difference between the two groups was found over the first two hours; however the Aminophylline group had a shorter hospital stay.

A third paper studied if the addition of intravenous terbutaline provides any clinical benefit as a second treatment in acute severe asthma. Again CASS was used as outcome measure. No statistical significance between the two groups was found although outcome measures revealed a trend toward improvement in the terbutaline group.
Conclusion There is evidence of the effectiveness of the different second line treatments but limited evidence that one is superior to other. A single study suggests MgSo4 as the most effective. Large well designed trials are needed to accurately answer this question. Till then any of the three treatments can be used depending on individual unit experience and preference.

418 USEFULNESS OF RAPID TEST FOR RESPIRATORY SYNCYTIAL VIRUS(RSV) IN THE DIAGNOSIS OF LOWER RESPIRATORY TRACT INFECTIONS IN 0–3YEARS OLD CHILDREN[1]

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Introduction Lower respiratory tract infections caused by RSV in form of bronchitis or bronchiolitis are the main reasons of hospitalization in infancy and early childhood.
Aim The aim of the study was to evaluate the usefulness of RSV rapid diagnostic test in children (0–3years old) hospitalized due to lower respiratory tract infections.
Materials and methods The study included 256 from 884 children (29%) in the age of 0 to 3 years, who were hospitalized due to bronchitis or pneumonia in the Department of Paediatrics, Bielanski Hospital, Warsaw, Poland from March 2009 to March 2012 (37months). All the children were tested with RSV Test (QuickVue, *Biomerieux*) and were assigned to one of the separate age groups (group A: 0–3months-96 (37.5%); group B: 3–6months-84 (32.8%); group C: 6–12months-48 (18.8%); group D: 12–24 months-22 (8.6%) and group E: 24–36months-6 (2.34%).
Results In 47.6% causes (121 out of 256) the test results were positive. The majority of the positive results were observed among children up to 6 months of life-93 (76.85%). In detail: results in the A and B group were positive in 51 (42.2%) and 42 (34.7%) children respectively. Tests were positive in C group in the amount of 24(19.8%), D group – 3(2.5%) and E group – 1(0.8%). In the 54 cases (44.6%) of children with the positive result there was a necessity of antibiotic treatment.
Conclusion The use of RSV rapid diagnostic test enabled the diagnosis of RSV infection, which especially among the youngest children, had an influence on treatment.
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419 SEVOFLURANE THERAPY FOR LIFE THREATENING ASTHMA IN CHILDREN

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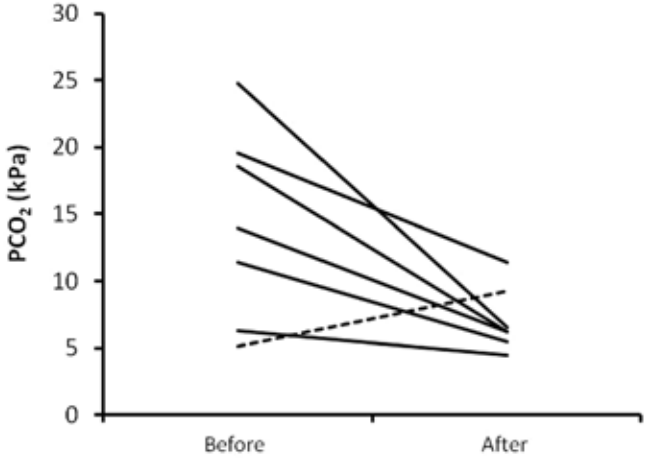
Background Severe asthma is treated with bronchodilators like salbutamol, corticosteroids, magnesium sulphate, and if necessary mechanical ventilation. If these options fail, volatile anesthetic agents can be used. This is the first multicentre case series that describes the effectiveness of sevoflurane therapy in children with life-threatening asthma.
Methods Pediatric patients admitted to the pediatric intensive care unit (PICU) with severe asthma and sevoflurane treatment were included. A retrospective review of demographic, medical, laboratory and ventilation parameters was performed.
Results 7 children from two PICU's in the Netherlands with age ranging from 4 to 13 years were included. The mean length of PICU stay was 6.7 days (range 3–10). Mean (range) dose of sevoflurane and duration of treatment were 2.2% (1–4%) and 24h (0.5–90h). Mean (range) pH at the beginning and at the end of sevoflurane treatment were 7.11 (6.97–7.36) and 7.35 (7.15–7.47)kPa ($p<0.01$). Mean (range) pCO_2 were respectively 14.3 (5.1–24.8) and 7.1 (4.5–11.4)kPa ($p<0.05$). Mean (range) peak pressure declined from 33 (23–56) to 22 (14–33) cmH_2O ($p<0.03$). Four patients developed hypotension, which was successfully treated with norepinephrine. One patient (dotted line figure), was afterwards judged to suffer from ARDS and indeed failed to respond to sevoflurane therapy.
Conclusion Mechanical ventilation with Sevoflurane inhalation is a safe and effective treatment for children with life-threatening asthma.



Abstract 419 Figure 1 pCO_2 before and after sevoflurane treatment