**Poster Presentations**

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

T Hassan, A Gandhi. Paediatrics, Heart of England NHS Trust, Birmingham, UK

**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 MgSO4, 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 0–3 YEARS OLD CHILDREN

T Jackowska, A SapalaSmoczynska, M Grzelczyk-Wielgorska. Department of Paediatrics, The Medical Centre for Postgraduate Education; 1Department of Paediatrics, Bielanski Hospital, Warsaw, Poland

**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 (0–3 years 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 (37 months).

The children were tested with RSV Test (QuickVue, Bioneris) and were assigned to one of the separate age groups (group A: 0–3 months-96 (37.5%); group B: 3–6 months-84 (32.8%); group C: 6–12 months-48 (18.8%); group D: 12–24 months-22 (8.6%) and group E: 24–36 months-6 (2.4%).

**Results** In 47.6% cases (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 (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.

**419** SEVOFLURANE THERAPY FOR LIFE THREATENING ASTHMA IN CHILDREN

D Schutte, AAM Zwiterloot, M de Hoog, RJ Hounes, JM Draaisma, UJ Lemson. 1Department of Intensive Care, Radboud University Nijmegen Medical Centre, Nijmegen; 2Department of Pediatric Intensive Care, Erasmus MC Sophia Children’s Hospital, Rotterdam; 3Department of Pediatrics, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands

**Background** Severe asthma is treated with bronchodilators like salbutamol, corticosteroids, magnesium sulphate, and if necessary mechanical ventilation. If these options fail, volatile anaesthetic 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 5–10). 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) pCO2 were respectively 14.3 (5.1–24.8) and 7.1 (6.97–7.36)kPa (p<0.01). Mean (range) peak pressure declined from 4.5 (4.5–11.4)kPa (p<0.05).

Severe 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.