Inhalation **news**

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Cochrane Review confirms:

Youngest bronchiolitis patients benefit from inhaling with 3% saline solution

A baby, just a few months old, is admitted to hospital with wheezing, high fever, a blocked up nose and swallowing difficulties. What diagnosis would you suggest in this case? It would probably be evident very quickly that the symptoms described are typical of acute viral bronchiolitis (BL). Now, how would you treat your young patient?

Advantages of inhaling 3% HS confirmed by Cochrane Review [6]:

- Significant reduction in length of hospital stay
- Significant improvement in clinical severity score
- Good tolerability

The question of whether medication is effective in the treatment of bronchiolitis, and if so, what medication, has been the subject of hot debate among learned bodies for over 40 years [1]. As yet, there is no national guideline for treating BL in Germany. However, the authors of three different Cochrane analyses have concluded that the options for treatment with antibiotics, corticosteroids or bronchodilators have only limited clinical benefit compared with placebo [2–5].

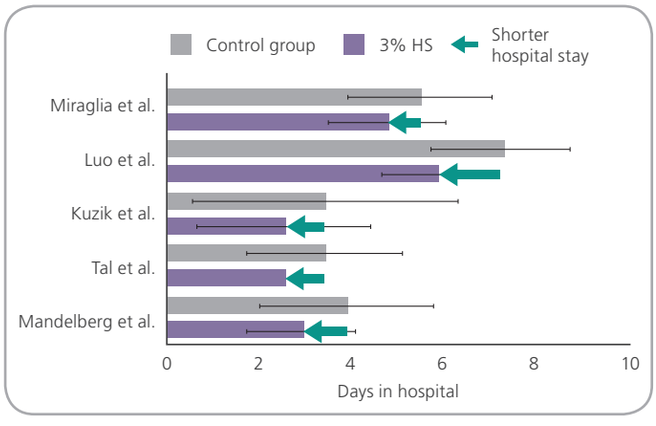

Fig. 1: Nebulised 3% HS significantly reduces the length of hospital stays due to acute viral bronchiolitis in 5 unrelated clinical studies [Data from 6, 9].

So what effective treatment possibilities are there, other than secondary treatments such as supplemental oxygen and additional fluid intake? The Cochrane Collaboration answers unequivocally: "Current evidence suggests nebulized 3% saline may significantly reduce the length of hospital stay (…) and improve the clinical severity score (…)." [6] (see Fig. 1 and Fig. 2).

In view of the flood of new data that has been published on the subject, in 2011 the authors of the Cochrane Review of 2008 updated their study meta-analysis. As a consequence, the benefits for outpatients and admitted patients suffering

from BL were reinforced and the recommended use of 3% hypertonic saline solution (HS) for this indication was repeated [6].

Cochrane Review confirms the reduction in length of hospital stay and the improvement of clinical severity score when treating bronchiolitis with nebulised 3% HS [6].

In the guidelines published jointly by the European Respiratory Society (ERS) and the International Society for Aerosols in Medicine (ISAM), an interdisciplinary working group of aerosol experts also confirms that: **"Hypertonic saline (3% or 5%) seems to be the only agent to be clinically effective in bronchiolitis." [7].**

According to the WHO, the RS virus (Respiratory Syncytial Virus) is one of the most common causes of BL, and acute viral bronchiolitis is one of the leading reasons for admitting infants and young children to hospital in industrialised countries (for example, 85,000 to 144,000 cases per year in the US.) It is estimated that the annual infection rate worldwide is in the order of 64 million new cases and 160,000 fatalities [8].

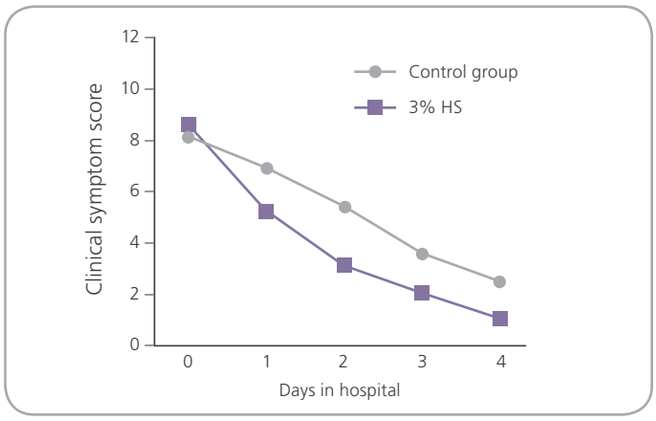

Fig. 2: Treatment with nebulised HS promotes faster recovery in babies with bronchiolitis [Data from 14]. The clinical severity score (respiratory rate, retractions, wheeze, and general appearance) is improved in the control group receiving physiological saline solution over the course of a 5-day, inpatient treatment period.

The first randomised, double-blind study of the efficacy of 3% hypertonic saline solution for babies suffering from BL was published about ten years ago (Ref. in [6]). Since then, more and more doctors have been prescribing inhaled 3% HS for children with typical symptoms. This rise is traceable because the study base is now very good. It consists of 14 published studies involving a total of about 1500 patients [Ref. from 6, 9–15], most of which are multicentric, randomised, double-blind and placebo-controlled. In order to ensure tolerability, the nebulised hypertonic saline solutions are nearly always administered together with bronchodilators. However, two studies have also been conducted in which HS was used without prior administration of bronchodilating medications such as epinephrine or salbutamol. The authors of both publications agree that inhalation with 3% HS has a good safety profile even without the additional application of bronchodilators [10, 14].

MucoClear 3% effective and safe for treating acute bronchiolitis:

- Sterile – 4 ml ready-to-use ampoules
- Handy - plastic ampoules
- Free from preservatives

Sources:
[1] Barben J et al. 2008; Thorax 63(12):1103
[2] Patel H et al. 2008; Cochrane Database Syst Rev. (1):CD004878
[3] Spurling GK et al. 2011; Cochrane Database Syst Rev. (6):CD005189
[4] Diagnosis and management of bronchiolitis. Pediatrics 2006; 118, 1774
[5] Gadomski AM & Brower M. 2010; Cochrane Database Syst Rev. (12):CD001266
[6] Zhang L et al. 2011; Cochrane Database Syst. Rev. (4), CD 006458
[7] Laube BL et al. 2011; Eur Respir J. 37(6):1308
[8] WHO Initiative for Vaccine Research (IVR), Acute Respiratory Infections (Update September 2009) (http://www.who.int/vaccine_research/diseases/ari/en/index2.html)
[9] Miraglia Del Guidice M et al. 2012; Int J Immunopathol Pharmacol. 25(2):485
[10] Ralston S et al. 2010; Pediatrics. 126(3):e520
[11] Al-Ansari K et al. 2010; J Pediatr. 157(4):630-4, 634.e1
[12] Teunissen J et al. 2011; ERS oral presentation 1716
[13] Ipek IO et al. 2011; Pulm Pharmacol Ther. 24(6):633
[14] Luo Z et al. 2011; Clin Microbiol Infect. 17(12):1829
[15] Kuzik BA et al. 2010; CJEM. 12(6):477

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PARI GmbH – Spezialisten für effektive Inhalation
Moosstraße 3 · D-82319 Starnberg
Tel.: +49 (0) 81 51 / 279 220
E-mail: info@pari.de · www.pari.de/en

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