

Reference: Wu S, Baker C, Lang ME, Schrager SM, Liley FF, Papa C, Mira V, Balkian A, Mason WH. Nebulized hypertonic saline for bronchiolitis: a randomized clinical trial. *JAMA Pediatr.* 2014 Jul;168(7):657-63. doi:10.1001/jamapediatrics.2014.301. PubMed PMID: 24862623.

Clinical question: Does the use of nebulized hypertonic saline decrease the rate of admission for patients with Bronchiolitis

Introduction: Bronchiolitis is the most common and costly respiratory disease in infants and young children. Previous studies have shown potential benefit of nebulized hypertonic saline. However, its effect in the emergency department setting is unclear.

Methods: A double blind, randomized clinical trial was conducted during 3 consecutive bronchiolitis seasons from March 1, 2008 through April 30, 2011. The study was conducted in 2 urban free-standing tertiary children's hospitals. Patients included were under the age of 24 months. Excluded patients included premature, chronic lung disease, immune deficiency, cardiac disease or previous episodes of wheezing or use of bronchodilators. The outcomes measured were hospitalization, length of stay and improvement in Respiratory Distress Assessment Instrument score (RDAI) which was converted into the Respiratory Assessment Change score.

Participants: 408 total patients were enrolled. 197 patient received NS and 211 received 3% HS.

Limitations: The study failed to meet its goal of 350 participants in each group. The number of patients that required admission was only 145, which was underpowered to find statistical significance. The study also failed to assess provider compliance with the treatment protocol. Most of the patients were Hispanic, which limited the ability to generalize the results.

Results and discussion: The admission rate for the NS group was 42.6% and 28.9 in the HS group, which was statistically significant with an adjusted odds ratio of 0.49 (95% CI, 0.28-0.86. Number need to treat to avoid 1 hospitalization was 8. The mean length of stay was 3.92 days and 3.16 in the NS and HS groups respectively. Length of stay differences were not found to be statistically significant. No statistical difference was found in the Respiratory Assessment Change Score for the two groups. This study demonstrates that the uses of HS saline nebs may be beneficial to prevent admission in a select patient population. However, optimal dosing and administration regimen still require further study.

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