

Continuous Nebulization Therapy

Breathing new life into proven therapy.

Faster Improvement

Continuous nebulization of albuterol is a relatively new administration technique for treating patients with unresponsive asthma. This method may offer the advantages of greater penetration of drug into the lung, reduced bronchospasm and a more rapid and sustained response. In clinical trials, continuous nebulization has been shown to be as effective as intermittent nebulization and may be associated with a reduction in the need for hospital admission, length of hospital stay and the use of mechanical ventilation.¹

¹ *AACN Clin Issues*, 1995 May; 6:2, 279-86 - Buck ML.

Fewer Admissions

Continuous nebulization of beta 2 agonists is now recognized as a useful treatment for severe exacerbations of asthma. This mode of administration has been described both for adults and children in the emergency room and in the intensive care unit. It has been suggested that early use of continuous inhalation therapy may reduce or prevent the need for intensive care unit admissions and potentially toxic treatments such as intravenous beta agonists and mechanical ventilation.²

² *Annals of Allergy*, 1992 Jul, 69:1, 71-9;
Portnoy J¹, Nadel G, Amado M, Willsie-Ediger S.
- Continuous nebulization for status asthmaticus.

In Peak Expiratory Flow Rates (PEFR) of 200 or less, continuous nebulization may decrease admission rate and improve PEFRs when compared with standard therapy.³

³ *Annals of Emergency Medicine*, 1993 Dec, 22:12, 1842-6;
Rudnitsky GS¹, Eberlein RS, Schoffstall JM, Mazur JE, Spivey WH.

- Comparison of intermittent and continuously nebulized albuterol for treatment of asthma in an urban emergency department.

Shorter Hospital Stays

In children with impending respiratory failure due to status asthmaticus, continuous nebulization of albuterol is safe and results in more rapid clinical improvement than intermittent nebulization. Respiratory therapy required at the bed-side and duration of hospital stay were substantially less for patients receiving continuous nebulization of albuterol, which suggests that continuous nebulization of albuterol is more cost-effective than intermittent nebulization.⁴

⁴ *Critical Care Medicine*, 1993 Oct, 21:10, 1479-86;
Papo, MC¹, Frank J. Thompson AE.

A prospective, randomized study of continuous versus intermittent nebulized albuterol for severe status asthmaticus in children.

Greatest Patient Improvement

When the FEV1 improvements for the different groups at 2 h were compared, the groups treated with continuous nebulization had the greatest improvement. The standard-dose continuous treatment regimen had the greatest improvement in FEV1 with the least number of side effects.⁵

⁵ *Chest*, 1996 Jul, 110:1, 42-7
Shrestha M¹, Bidadi K, Gourlay S, Hayes J.

Continuous vs intermittent albuterol, at high and low doses, in the treatment of severe acute asthma in adults.

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Decreased Admission Rate

Conclusion: In peak expiratory flow rates (PEFR) of 200 or less, continuous nebulization may decrease admission rate and improve PEFRs when compared with standard therapy.⁶

⁶ *Annals of Emergency Medicine*, 1993 Dec, 22:12, 1842-6;
Rudnitsky GS, Eberlein RS, Schoffstall JM, Mazur JE, Spivey WH.

- Comparison of intermittent and continuously nebulized albuterol for treatment of asthma in an urban emergency department.

Safe for Children

We feel that continuous albuterol nebulization (CAN) is safe for use in children diagnosed with status asthmaticus.⁷

⁷ *Pediatrics Emergency Care*, 1996 Feb, 12:1, 1-5;
Craig VL¹, Bigos D, Brilli RJ.

- Efficacy and safety of continuous albuterol nebulization in children with severe status asthmaticus.

We conclude that continuous nebulization therapy (CNT) with low-dose beta agonists should be considered in the initial approach to therapy in children with acute severe asthma.⁸

⁸ *J Asthma*, 1994, 31:3; 201-7
Montgomery VL¹, Eid NS.

- Low-dose beta-agonist continuous nebulization therapy for status asthmaticus in children.

This preliminary study suggests that continuous nebulized terbutaline (CNT) is an effective therapy for severe asthma in children.⁹

⁹ *J Allergy Clin Immunol*, 1988, Jun 81:6; 1101-9
Moler FW¹, Hurwitz ME, Custer JR.

Improvement in clinical asthma score and PaCO₂ in children with severe asthma treated with continuously nebulized terbutaline.

Significant Time Savings

There was no difference in efficacy or safety between continuous nebulization (CN) and intermittent nebulization (IN) therapy in the ED management of moderate to severe asthma exacerbations in children. Moreover, CN therapy provided a significant time savings in the delivery of asthma therapy to patients in a busy ED.¹⁰

¹⁰ *Academic Emergency Medicine*, 1996 Nov, 3:11, 1019-24;
Khine H¹, Fuchs SM, Saville AL.

- Continuous vs intermittent nebulized albuterol for emergency management of asthma.

Safe and Effective

High-dose continuous nebulization of albuterol is as safe and as efficacious as intermittent nebulization of albuterol in the early treatment of asthma in an emergency department. To our knowledge, this is the first study showing continued significant improvement beyond the initial two hours of therapy using high dose nebulized beta-agonists.¹¹

¹¹ *Annals Allergy Asthma Immunol*, 1995 Jul, 75:1, 41-7
Reisner C¹, Kotch A, Dworkin G.

- Continuous versus frequent intermittent nebulization of albuterol in acute asthma: a randomized, prospective study.

We conclude that a continuous nebulized albuterol protocol is both extremely efficacious and safe for the treatment of acute adult asthma attacks.¹²

¹² *American Journal Emergency Medicine*, 1993, Mar, 11:2; 131-3
Olshaker J¹, Jerrard D, Barish RA, Brandt G, Hooper F.

- The efficacy and safety of a continuous albuterol protocol for the treatment of acute adult asthma attacks.