Efficacy of nebulized ipratropium bromide versus salbutamol in infants with actute bronchiolities

Bronchiolitis is a viral inflammatory lesion of small airways. More than 70% cases are due to respiratory suncytial virus. Other pathogens are parainfluenza virus, adenovirus, rhinovirus, influenza virus and *Mycoplasma pneumoniae*. The occurrence is highest in mid winter to late spring. The peak incidence of bronchiolitis is 2-6 months of age and virtually all children become infected during first 3 years of life[1, 2].

Bronchiolitis occurs most commonly in male infants who have not been breast fed and live in crowded condition[2]. Treatment of majority cases of bronchiolitis is mainly supportive. Humidified oxygen is the single most useful therapy[3,4]. Nebulized salbutamol and epinephrine is being used with limited therapeutic value[5]. The response to anticholinergic agent appears quite variable in bronchiolitis but it can be a useful agent in the first 18th months of life[4]. Although there has been a number of studies on the role of ipratropium bromide but information remains relatively few.

So, this study aims to assess the efficacy of nebulized salbutamol and ipratropium bromide in infants with bronchiolitis and to compare the efficacy of these two drugs in bronchiolitis.

This prospective study was conducted from July 2003 to December 2004, among 60 infants. Previously healthy infants (2-12 months) having first episode of wheeze were included but child with evidence of previous similar attack, use of steroid and history of asthma, atopy or allergy in the patient or family and presence of congenital heart disease and tuberculosis were excluded.

After enrolment, detailed history and thorough physical examination were done and recorded in a pre-tested questionnaire. Severity of illness were assessed by using a combination of MRDAI score (respiratory distress assessment instrument) and 2 saturation by pulse oxymetry. The cases were then assigned into two groups as A (salbutamol group, n=30) and B (ipratropium group n=30). Group A received nebulization with salbutamol in a dose of 0.15 mg/kg body weight and group B received nebulization with 250 μg of ipratropium bromide solution and both the drugs were mixed with normal saline to make a total volume of 3 ml. Nebulization in each groups were given at 20 min intervals for three times. Ten min after administration of the last dose, MRDAI score and oxygen saturation were assessed.

In both groups, after salbutamol and ipratropium bromide nebulization, oxygen saturation, MRDAI score were improved but in comparison to two groups, the difference of improvement was not statistically significant. Several clinical trials with β_2–agonist and ipratropium have shown improvements in clinical scoring system[5,6-8]. So, it is concluded that salbutamol and ipratropium bromide both are useful for relieving distress in bronchiolitis.

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DOI: 10.3329/bmrcb.v34i3.1861

Table I: Comparison of response to therapy with nebulized salbutamol versus ipratropium

	Before therapy (n=30)			After therapy (n=30)		p
	Salbutamol	Ipratropium	p	Salbutamol	Ipratropium	
Respiratory rate	65.3 (± 6.9)	65.6 (±7.3)	0.10	50.8 (±6.2)	51.9 (±6.4)	0.13
Oxygen saturation	93.1 (±2.3)	92.9 (±2.1)	0.77	95.7 (±2.2)	96.1 (±2.5)	0.12
MRDAI score	13.4 (±1.5)	13.9 (±1.5)	0.16	7.2 (±1.6)	7.4 (±1.8)	0.66
MRDAI score reduction				6.3 (±1.3)	6.4 (±1.6)	0.85

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