

**Comparative evaluation of Metered- Dose Inhalers with Spacers Vs Electric Jet Nebulizers for bronchodilator therapy to treat mild and moderate wheezing in Children aged 2 to 24 Months**

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**Background:** Infants and small children admitted to the pediatric emergency department (PED) with acute wheezing episodes (AWE) are currently treated with nebulizers. They are however expensive, time consuming and uncomfortable, particularly for children. It needs oxygen or compressed air supply.

Recently there is strong evidences support the use of pressurized metered dose inhalers combined with a spacer as a substitution for electric jet nebulizers.

**Aim of the work:** the aim of the present study is to determine the efficacy of bronchodilator therapy using Metered Dose Inhaler ( MDI) with spacers, as compared to Electric Jet Nebulizer ( EJN) in the treatment of wheezing in children aged 2 to 24 months.

**Patients and method:** The present study was performed with 120 children aged 2 to 24 months presented to the Emergency Room of Fayoum University hospital with some degree of respiratory distress and wheezing. The clinical features and oxygen saturation were recorded.

Patients received salbutamol through either MDI with spacer (n=60) or EJN (n=60). Pre and post inhalation measurements of respiratory rate (RR), heart rate (HR) and oxygen saturation were recorded and statistically compared.

**Results:** There are highly statistically significant differences between the two groups of patients at base line and after treatment regarding to clinical recording as Respiratory rate, Heart rate, and length of stay with (p-value < 0.05). The mean heart rate demonstrated higher values in EJN group than in the MDI group after treatment. The mean length of stay in the emergency room was higher in the EJN group than in the MDI group ( p-value was <0.001).

There are significant differences between mild and moderate patients regarding to clinical recording as Respiratory rate, Heart rate, and length of stay (p-value < 0.05) both before and after treatment, however no significant difference observed regarding oxygen saturation in both groups.

***Conclusion:***We conclude that even in the group of very young children (mean age  $\leq 2$  years) with acute wheezing episode, the use MDI is at least as effective as the use of nebulizer. The frequency of side effects was significantly higher in EJN group. Use of MDI should be incorporated into guidelines for management of wheezy small children in developing countries.