

## البحث الرابع

(4) بحث فردي غير مستخلص من رسالة:

عنوان البحث باللغة الإنجليزية:

Comparative evaluation of home made non valved spacer devices versus electricjet nebulizer and commercial valved spacers for bronchodilator therapy in mild and moderate asthmatic exacerbation.

الملخص الإنجليزي:

**Background:** Bronchodilators are routinely administered via inhalation when treating asthmatic crisis. The devices most frequently employed at the majority of emergency room hospitals are electric jet nebulizers (EJN). They are however expensive and uncomfortable, particularly for children, It requires about 20 minutes to administer the prescribed dose and need oxygen or compressed air supply. The deposits reach the lower airways vary from 3 to 13% of the total number of particles which are available for inhalation.

Strong evidence supports the use of pressurized metered dose inhalers (pMDI) combined with a spacer as a substitution for EJN. Despite its advantages, the PMDI combined with a spacer have not yet substituted EJN at the majority of hospitals' emergency rooms. The high cost and lack of availability Of commercially produced spacers however, have limited their use in developing countries..

**Aim of the work:** The aim of the present study was to compare the clinical efficiency of inhaled beta-2 against delivered through home made non-valved (HMS) spacers to electric jet nebulizers (EJN) and the commercially produced valved spacers (CVS) for bronchodilator therapy in mild and moderate asthmatic exacerbation..

**Patients and methods:**The present study was performed with 90 children and adolescent patients with acute asthmatic exacerbation, aged 6 – 21 years in emergency room of FayoumUniversity hospital. The clinical features, oxygen saturation (Sa O<sub>2</sub>), and the best of three peak expiratory flow rate (PEFR) were recorded.

Patients received inhaled salbutamol through either EJV (n=30), or pMDI connected to commercial valved spacer (Aerochamber®) (n=30) or home made non-valved spacer (500 ml sealed mineral water plastic bottle), (n=30). Pre and post inhalation measurements of PEFR, SaO<sub>2</sub>, respiratory rate (RR), heart rate (HR), were made and statistically compared.

**Results:**In the EJV (n=30), CVS (n=30) and HMS (n=30) groups, PEFR (P > 0.05) and SaO<sub>2</sub> (P > 0.05) measurements improved in all stages of the treatment. During the asthmatic attack, the EJV needed a prolonged observation in the emergency room (P < 0.05). Side effects of salbutamol, e.g. increased heart rate, were observed in EJV groups more than HMS (P<0.05).

**Conclusion and recommendations:**All devices produced similar bronchodilators in mild and moderate attacks, However the use of HMS resulted in a shorter observation period in ER. The frequency of side effects was significantly higher in EJV group. Use of HMS should be incorporated into guidelines for asthmatic management in developing countries.