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Aim: To evaluate the efficacy of a dry powder inhaler, salbutamol Turbuhaler® in patients with acute bronchial obstruction attending the emergency room. The reference drug was salbutamol pressurized metered dose inhaler (pMDI) with spacer.

Design: Double-blind, randomized, parallel-group design with FEV1 as the primary efficacy variable. Doses of 100 + 300 + 300 + 300 |g were given at 0, 15, 30 and 45 min via TBH and repeated at 90, 105, 120 and 135 min, respectively (total 2000 |g). The same inhalation schedule was followed for the pMDI with spacer but in double doses (total 4000 |g). At 35 min after first dose 60 mg prednisolone was given orally. Peak inspiratory flow (PIF) through TBH was measured on each dosing occasion. Plasma-salbutamol and serum-potassium concentrations were monitored.

Patients: 86 patients (54 women), mean age 38 years, mean FEV1, 37% predicted normal.

Results: No statistically significant differences were observed in the increase of FEV1 between the groups: 5.5 min (165 min) after the first dose the mean increase was 47% (63%) in the TBH group and 42% (65%) in the pMDI group. Mean PIF through TBH was 49 (range 26–68) L/min at first inhalation and increased to 60 (range 38–80) L/min. There was no correlation between the initial PIF through TBH and the FEV1 responses. The p-salbutamol and s-potassium values correlated well. Significant decrease in s-potassium in the pMDI group was noticed compared with the Turbuhaler group (p = 0.02).

Conclusion: A dry powder inhaler such as Turbuhaler can be used in acute asthma. Half the dose of salbutamol via Turbuhaler was as effective as the full dose given via pMDI with spacer.