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Cost-effectiveness and pharmacoeconomic analysis of combined inhaled corticosteroids and bronchodilators for severe and very severe COPD patients and health related quality of life of COPD patients in a teaching hospital

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Background: This study aims at simplifying the practical patient management and offers some general indications for pharmacotherapeutic choice by the implementation of (GOLD 2004) guidelines. This study was designed to evaluate the clinical and economic consequences of Salmeterol/Fluticasone, Formoterol/Budesonide and Formoterol/Fluticasone in severe and very severe COPD patients.

Objectives: To find out the most cost-effective drug combination between the three combinations (SF/FB/FF) in COPD patients and Health Related Quality of Life of COPD Patients.

Methods: A prospective observational comparative study (Cost-effectiveness Analysis) in which 90 severe ($30 \leq FEV_1 < 50\%$ predicted) and very severe ($FEV_1 < 30\%$ predicted) COPD patients (OP/IP) who are prescribed with any one of the following combinations (SF/FB/FF) were selected. In our study we have divided 90 COPD patients into 3 groups (Group I, Group II & Group III) each group consisting of 30 patients. Group I was prescribed with medication SF (salmeterol/fluticasone), Group II with medication FB (formoterol/budesonide) and Group III with medication FF (formoterol/fluticasone). We used five different parameters such as Spirometry test (mean FEV₁ initial & final visit), SGRQ-C questionnaire (initial & final visit), number of symptom free days, number of moderate & severe exacerbations and direct, indirect & total cost to assess the cost-effectiveness of SF/FB/FF. Comparison of cost and effects was done during the period of 6 months of using SF/FB/FF. Statistical methods used in our study are paired student t-test, ANOVA.

Results: The mean SGRQ-C total score for group I subjects (SF) at initial visit was 86.69 and the scores reduced to 58.78 at final visit (i.e. after using SF for 6 months). This reduction was highly significant statistically ($t=10.989$, $p=0.000$) at 95% CI. The mean SGRQ-C total scores for group II subjects (FB) at initial visit were 85.85 and the scores reduced to 67.98 at final visit. This reduction was highly significant statistically ($t=9.669$, $p=0.000$) at 95% CI. The mean SGRQ-C total scores for group III subjects (FF) at initial visit were 83.96 and the scores reduced to 70.37 at final visit (after 6 months). This reduction was highly significant statistically ($t=12.285$, $p=0.000$) at 95% CI. The average FEV₁ for group I, group II and group III subjects at initial visit was 33.47%, 33.73% & 33.20% and was increased to 36.60%, 35.8% and 33.4% respectively. A 3% increment in FEV₁ was reported for group I subjects (SF) and was highly significant statistically ($t=-8.833$, $p=0.000$) at 95% CI. For group II subjects (FB), a 2% increment in FEV₁ was reported and was highly significant statistically ($t=-9.001$, $p=0.000$) at 95% CI. For group III subjects 0.2% increment in FEV₁. The overall mean total cost for group I, group II and group III subjects during the 6 months period was found to be Rs.29725/-, Rs.32602/- and Rs.37155/-. Incremental cost-effectiveness of FB vs SF was Rs.37781/- per avoided exacerbation and Rs.661/- per SFD.

Conclusion: This study highlighted the favorable therapeutic performance of combined inhaled bronchodilators & corticosteroids (SF/FB/FF), thus suggesting that healthcare costs would be also affected positively. Results from our study showed that SF (Salmeterol/Fluticasone) and FB (Formoterol/Budesonide) were the most effective strategies in the treatment of COPD, with a slight clinical superiority of SF. The FF (Formoterol/Fluticasone) strategy was not much effective (i.e. associated with less outcomes & higher costs).

Biography

Mohammed Altaf, pursuing his Pharm.D from Deccan School of Pharmacy affiliated to Jawaharlal Nehru Technological University, Hyderabad, Telangana, India. He is doing his internship from Owaisi Hospital and Research Centre-Hyderabad, Telangana, India. He had published 4 Original Research papers in National and International journals and has been serving as reviewer of International Journal of Pharmacy and Pharmaceutical Sciences. He is also the Junior Editor of Clinica Pharma "Insight".

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