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Title: Nebulised antibiotics with the I-neb adaptive aerosol delivery (AAD) system: Impact on adherence in cystic fibrosis (CF) patients

Dr. Silvia 16756 Gartner silviagartner@gmail.com MD ¹, Dr. Carlos 16757 Martin carl_zaragoza@yahoo.es MD ¹, Dr. Pilar 16758 Vallejos pvallejo@praxisph.com MD ², Dr. Antonio 16759 Moreno amoreno@vhebron.net MD ¹, Dr. Ines 16760 de Mir fernandezdemir@gmail.com MD ¹, Dr. Alba 16766 Torrent altorrent@vhebron.net MD ¹ and Dr. Marcelo 16768 Razquin razquin.marcelo@gmail.com MD ¹. ¹ Pediatric Pulmonology and Cystic Fibrosis Unit, Hospital Universitari Vall d'Hebron, Barcelona, Spain, 08035 and ² Medical Department, Praxis Pharmaceutical, Madrid, Spain .

Body: Purpose: to assess the adherence and compliance to prescribed treatment of CF patients to nebulised antibiotic utilising the AAD system. Methods: 17 cystic fibrosis patients (12 female, age range 8-18 years) infected with *Pseudomonas aeruginosa* and treated with aerosolised colistin twice a day using the AAD were included. Data were downloaded during a clinic visit 3 months later and in 7 patients, a second download after year. None of the patients were aware that the data were recorded. Results: Mean overall adherence over the 3 months of treatment (number of recorded doses/ number of prescribed doses x100) was 90.73% (SD: 26.37%) with 2 out of 17 patients having an overall adherence below 75%. The mean percentage of days each patient fully adhered was 79.48 % (SD: 17.57 %) and the mean of fully compliance was 84.90% (SD: 28.27%). Overall mean values adherence was maintained over the year. Mean treatment time was 8.08 minutes. Evening adherence (94.76%, SD:33.34%) was better, (but statistically not significant) than in the morning (86.20%, SD:22.04%). Also, no significant correlations were observed between better adherence and FEV₁, FEF_{25-75%}, age, BMI, chronic PA. Conclusions: The high level of adherence observed in our series contrast with the poor compliance reported in previous studies. The AAD system recording offers very useful information to examine patterns of adherence during aerosolised therapy and allows to monitor aspects of the treatment that can be improved.