INTRODUCTION CPAP systems can be contaminated by microbes, increasing the risk of respiratory infections. Humidifiers can add a higher risk. Our study evaluates upper respiratory tract colonization and respiratory diseases related to CPAP with or without humidifier. METHOLOGY A Prospective study was designed. 100 CPAP-users were randomized: Group A (CPAP without humidifier): 50 patients (41 men, 9 women) between 28 and 87 years (average, 55). GROUP B (CPAP with humidifier): 50 patients (43 men, 7 women) between 41 and 98 years (average, 62). Patients were instructed on good hygienic practices in maintaining their systems. They were asked about respiratory infection symptoms. Swabs were taken from pharyngeal exudates in all patient, and from masks and tubes in Group B. RESULTS 16 Pharyngeal exudates cultures were positive in Group A and 5 in Group B (32% versus 5%). Results: Streptococcus group G 6 patients in Group A; Streptococcus pyogenes group A: 6 in Group A and 1 in Group B; Streptococcus beta-hemolytic group C: 3 in Group A, 2 in Group B; Staphylococcus aureus : 1 in Group A; Streptococcus group C: 2 in Group B. Respiratory infection symptoms: 3 patients in Group A, 5 in Group B (6% versus 10%). Swabs from masks and tubes in Group B: 31 polymicrobial flora, 2 multiple fungal flora, 3 Turolopsis candida, 1 Aeromonas hidrophila, 1 Rodotora rubra, 1 Serratia marcescens and 1 Pseudomonas aeruginosa. CONCLUSIONS Upper respiratory airways colonisation has been lower in the humidifier group,
even though CPAP systems contamination has been common. Respiratory infection symptoms were low in both groups. Humidifiers have not significantly increased infections.