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Title: Development of an intervention algorithm in telemetrically supervised adaptation of positive airway pressure therapy for OSAS

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Body: Introduction: The acceptance of positive airway pressure therapy (PAP) is a major clue to successful OSAS therapy. Telemedicine is a novel tool to supervise PAP use at the patient's home. We report on treatment results with an intervention scheme developed to guide patients during the first month of telemetrically supervised PAP adaptation. Methods: After mask adaptation and explanation of the PAP devices (ResMed S9), newly diagnosed OSAS patients were equipped with telemedicine (ResTraxx Online™, ResMed) for the first month of therapy. The automatically downloaded hours of PAP use and leak flow were checked 3 days per week. Patients received phone calls after 2 nights of <4h usage or average leak >0.4L/s. Technical problems, number and duration of phone calls and CPAP use information were analysed. Results: During the study period, 73 OSAS patients received telemedicine for a total of 2045 nights. Minor technical problems with data transmission for 1 to 3 nights occurred in 12(16%) patients. The average PAP use was 4.2 +/- 3.4h/night. In 430 nights (21%), PAP was not used, hence, usage was 5.4+/-3.5h for nights on PAP. PAP use of >0h was detected in 74%, >4h in 55% of patients. A total of 174 calls, average duration 14 minutes, were performed in 53 (72%) patients, range 1 to 15 calls/patient. After 1 month, 62 (85%) OSAS patients continued PAP. Conclusion: Telemedicine for the introduction of PAP in OSAS is technically feasible. Our intervention algorithm resulted in phone calls for the majority of patients. To determine the direct effects of telemedicine on PAP acceptance, a randomised prospective study is necessary.