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Title: Efficacy assesement of home mechanical ventilation: Comparison of ventilator software data with home respiratory poligraphy (pilot study)

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Body: Background. Domiciliary bi-level ventilators have specific software that estimates residual Apnea-Hypopnea Index (AHI). The accuracy of this data is important to achieve optimal ventilatory parameters. Objectives. Compare the residual AHI from the software of ventilator with the residual AHI obtained by a Domiciliary Respiratory Poligraphy (DRP) in patients with Chronic Respiratory Failure (CRF). Methods. Patients newly diagnosed with CRF and eligible for Home Mechanical Ventilation (HMV) were included. All patients were treated with BiPAP A30 (Phillips Respironics®). By 3rd month all performed DRP (Alice 5, Phillips Respironics®, 10 channels, including z-Rip (Pro-Tech) and TcCO₂ (Sentec®)). The residual AHI obtained from the ventilator software (EncoreAnywhere, Phillips Respironics®) was compared with the residual AHI from DRP reviewed manually. Results. Data is presented as median (per 25-75). 16 patients were studied, 9 (56,25%) with restrictive disease and 7 (43,75%) with obstructive disease with a FVC of 68,5 (50-81,1)%, FEV₁ of 57,9 (28,3-73)%, PaCO₂ of 51,1 (45,4-59,5) mmHg, PaO₂ of 63,5 (56,2-71,5) mmHg. SpO₂ of 93,5 (91,7-95,3)%. Measured by the DRP baseline AHI improved in all patients (18 (7,8-50,8) vs 2,9 (0,9-8,1), p<0,01) /h. When compared with residual AHI of ventilator software 3,4 (0,8-5,5) /h no significant differences were found (p=0,5). Conclusion. Although further research is warranted, the results of this pilot study suggest that the AHI obtained by the ventilator software can be used to achieve optimal ventilatory parameters in patients with CRF of varying severity.