

Tele-monitoring in paediatric neuromuscular patients requiring home mechanical ventilation, multicentric study

Trucco F.¹, Pedemonte M.¹, Racca F.², Falsaperla R.³, Romano C.³, Wenzel A.³, Tacchetti P.¹, Bella C.², Bruno C.¹, Minetti C.¹

¹ Istituto Giannina Gaslini, Unit of Pediatric Neurology and Muscle Diseases, Genova Italy; ² Ospedale SS. Antonio e Biagio e Cesare Arrigo, Pediatric Intensive Care Unit, Alessandria Italy; ³ Ospedale Vittorio Emanuele, Unit of Pediatrics, Catania Italy

Tele-monitoring (TM) has largely been proved to be effective in adult ventilator-dependent neuromuscular patients (Ambrosino et al ERJ 2016).

We aimed to evaluate the effectiveness of a two-year longitudinal observational multicentric TM trial, specifically designed for paediatric ventilated neuromuscular (NMD) patients, in terms of feasibility, patients' satisfaction and hospitalisation rate reduction.

TM included weekly scheduled physiotherapist calls after an overnight SaO₂, heart rate and ventilation telemetric monitoring. A baseline clinical score (Vitacca et al ERJ 2009) was given to patients; variations >3 were considered exacerbations and managed by physicians. Hospitalisations were compared with those of an age-disease-severity-matched control population. Patients' satisfaction was assessed using questionnaires.

Forty-eight patients were enrolled, 30 males. Median age was 16.4 years (8.9-22.1), median ventilation/day was 10.5 hours (8- 6). The total number of exacerbations was similar in TM patients and controls (59 vs 53), but the total hospitalisation rate was reduced in TM patients (11vs21, p 0.0286). Although there was no significant difference in the number of ward and ICU admissions (respectively 9vs15 and 2vs6, p 0.52), the total length of admission was significantly reduced in the TM patients (108vs219 days, p 0.028), as well as those in ward (median 6vs8 days, p 0.004), and in ICU (median 17vs25 days, p 0.049). All patients reported improvement in the items involving "communication".

The present trial has shown for the first time in ventilated paediatric patients, the efficacy of TM in the management of respiratory exacerbations and in patients' satisfaction.