ABSTRACT

Reflex locomotion according to Professor Vojta (VRL) is based on the activation of complex motor patterns from certain defined positions with stimulation of the so-called trigger zones, located on the human's body. It is primarily used in patients with neurological deficits; however, it is currently also being used in internal medicine. It has been reported that VRL can indirectly affect breathing, however its use in paediatric patients with chronic respiratory disease has not yet been investigated. As part of this theses, a randomized controlled single-centre intervention study was conducted. Its aim was to evaluate the short-term effects of VRL on lung function in paediatric patients with cystic fibrosis (CF) with normal baseline spirometry. The effect of a 30minute VRL intervention was compared in a crossover design with the effect of positioning (without stimulation of trigger zones). The primary outcome was the change in global ventilation inhomogeneity, assessed by lung clearance index ($LCI_{2.5}$) derived from nitrogen multiple breath washout test. Secondary outcomes included changes in regional ventilation inhomogeneity (indices of acinar [Sacin*Vt] and conductive airways [Scond*Vt] inhomogeneity) and spirometric parameters (inspiratory capacity, forced vital capacity, and forced expiratory volume in 1 s). Chest and trunk deformities were also assessed. After the VRL intervention, we demonstrated a statistically significant reduction in ventilation inhomogeneity $LCI_{2.5}$ (**Δ** = -1,4; p = 0.004) and Scond*Vt (**Δ** = -0,009; p = 0.009) and an increase in inspiratory capacity (**Δ** = 7 %; p = 0.012). After positioning alone, none of the parameters changed significantly.