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Title: Lung function in infants and toddlers after the repair of congenital diaphragmatic hernia (CDH)

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Body: There are only 4 studies on infant pulmonary function testing (IPFT) performed after repair of CDH. We used a wide spectrum of IPFT methods to test babies in whom CDH repair was performed. We tested 30 infants and toddlers after CDH repair (BW 3.10±0.54 kg [mean±SD]; body length 49.5±2.2 cm). In 4/30 Goretx patch was used (subgroup GORE). Age at testing was 1.32±0.54 (median 1.07) yrs; body weight 9.76±1.25kg (z-score -0,777), body length 78.8±6.7cm (z-score -0,024). The whole-body plethysmography (to measure FRCp and sReff), tidal breathing analysis (tPTEF%tE), baby resistance/compliance (specific Crs) and RTC method (V´maxFRC) were performed. Standard protocols^{1,2} and proper reference values^{3,4} were used. FRCp equals 126.5±36.9% pred (P<0.002), sReff reached 109.9±58.9% pred (ns). A parameter of tPTEF%tE decreased (22.2±8.5%). Specific compliance of the respiratory system, rs (Crs/kg) was 14.1±2.3 ml/kPa/kg (76.1±20.1% pred) A value of V´maxFRC reached only 112±44ml/sec (z-score -2.387). Increased value of FRCp was found in GORE subgroup (165.7±51.9 vs. 120.4±31.2, p<0.02). Our cohort had normal body length but mildly lowered body weight. Neither central airway (aw) obstruction nor restrictive pattern was found. Mild peripheral aw obstruction, mild (secondary) hyperinflation and mildly decreased specific Crs was found. References: 1.Hammer J, Eber E (eds). Pediatric Pulmonary Function Testing, 2005, Basel, Karger; 2.Gappa M et al. ERS/ATS Task Force. Eur Respir J. 2001 Jan;17(1):141-8; 3.Hulskamp G et al. Am J Respir Crit Care Med 2003;168:1003-9; 4.Koumbourlis AC et al. Pediatr Pulmonol. 2004 Apr;37(4):318-23. Supported by the grant NS 10572-3/2009 and grant GAUK 62809.