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Title: Congenital diaphragmatic hernia: The effect on growth and neurodevelopment in young children

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Body: Background: Congenital Diaphragmatic Hernia (CDH) survivors are at risk of poor growth and neurodevelopmental outcomes. Aims: To describe the effect of CDH on growth and neurodevelopmental outcome during the first 3 years in a prospective cohort of CDH infants and controls. Methods: Infants with CDH admitted to our centre between 2005 and 2011 were included. Anthropometric measurements were collected and neurodevelopmental outcomes were compared with locally born controls. Results: 55 infants with CDH were admitted with a survival rate of 82%. Weight was most affected in early infancy: mean(±SD) z-score of -1.65±1.30 at 3 months, -1.35±1.18 at 6 months with improvement to -0.41±0.97 at 3 years. Days of mechanical ventilation, duration of hospital stay, patch repair, prenatal diagnosis and oxygen requirement at discharge were found as predictors of failure to thrive. There were no differences in neurodevelopmental outcome scores between CDH patients and controls.

Bayley-III Scale	Outcome at 1 year of age			Outcome at 3 years of age		
	CDH (N=17)	Controls (N=36)	P-value	CDH (N=14)	Controls (N=30)	P-value
Cognitive	11.41±2.50	11.14±2.37	0.70	10.36±1.60	10.73±2.53	0.61
Receptive language	10.18±2.07	11.17±2.61	0.18	10.42±2.31	11.23±1.81	0.23
Expressive language	9.35±2.15	10.06±2.15	0.27	9.33±1.78	10.87±2.64	0.07
Fine motor	9.82±1.78	9.97±2.18	0.81	10.64±1.78	11.00±2.10	0.59
Gross motor	8.24±3.23	8.97±2.49	0.37	9.86±1.35	10.21±2.40	0.62

Mean ± standard deviation. Normal scores: 10±3; mildly delayed<8, severely delayed<4.

Conclusion: Poor growth is a common early finding in CDH patients, which improves dramatically after six months. Importantly, neurodevelopmental outcome was normal compared to healthy matched controls.