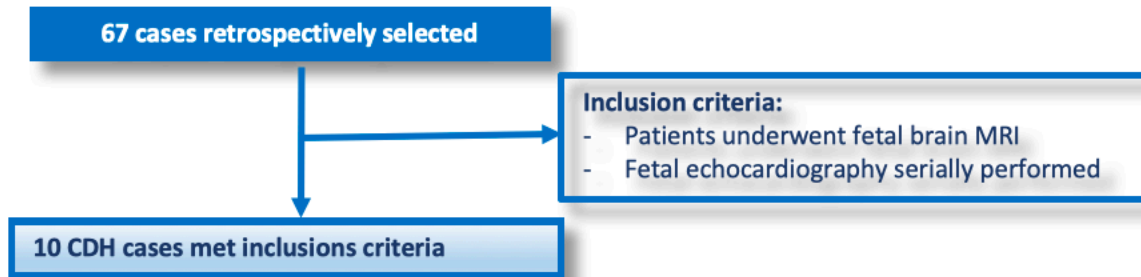


Fetal brain dimensions in congenital diaphragmatic hernia (CDH): relationship with fetal cardiac dimensions.

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Objective: To assess the relationship between brain measurements and biometric cardiac measures in a cohort of left isolated CDH fetuses.

Methods:



Fetal brain MRI	Fetal echocardiography
Median gestational age (GA) of 32 (24-36 weeks) <ul style="list-style-type: none"> - Left and right insular fissure (L-IF, R-IF) - Left and right insular depth (L-ID, R-ID) - Left and right cingulate fissure (L-CF, R-CF) - Brain fronto-occipital diameter (BFOD) 	Serially performed at 3 GA groups: 20-24 wks / 25-28 wks / 33-38 wks <ul style="list-style-type: none"> - Mitre valve diameter (MVdm) - Tricuspid valve diameter (TVdm) - Left and right ventricular length (LVL, RVL) - Left and right ventricular end-systolic area (LVESA, RVESA) - Left and right ventricular end-diastolic area (LVEDA, RVEDA)

Results:

	MVdm	TVdm	LVL	RVL	LVESA	RVESA	LVEDA	RVEDA
20-24 wks	N.S.	N.S.	R-CF (p0.01, r ² 0.5)	L-IF (p0.03, r ² 0.4)		N.S.	R-CF (p0.01, r ² 0.5)	L-IF (p0.02, r ² 0.5)
25-28 wks	N.S.	N.S.	L-CF (p0.02, r ² 0.5)	N.S.	L-ID (p0.04, r ² 0.4)	N.S.	R-CF (p0.03, r ² 0.5)	N.S.
			R-CF (p0.04, r ² 0.4)		L-CF (p0.01, r ² 0.6)			
			R-IF (p0.04, r ² 0.4)					
33-38 wks	L-IF (p0.04, r ² 0.42)	N.S.	R-IF (p0.001, r ² 0.53)	N.S.	L-ID (p0.04, r ² 0.6)	R-IF (p0.003, r ² 0.4)	L-ID (p0.003, r ² 0.7)	N.S.
					R-ID (p0.001, r ² 0.5)		R-ID (p0.003, r ² 0.7)	
					R-IF (p0.002, r ² 0.5)		R-IF (p0.04, r ² 0.4)	
					BFOD (p0.004, r ² 0.6)		L-IF (p0.01, r ² 0.5)	
							BFOD (p0.001, r ² 0.8)	

Z-score were calculated with Schneider's formula.

Conclusions: - left and right cardiac reduced dimensions are significantly associated to reduced brain cortical measurements, particularly insular fissure, insular depth, cingular fissure and brain fronto-occipital diameter in left isolated CDH fetuses during gestation

These results support the hypothesis that brain development in CDH fetuses could be affected by impaired cardiac development.