

Longitudinal changes in uterine, umbilical and fetal MCA Doppler indices in late onset small fetuses

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Objective

To determine the longitudinal trends and rates of conversion of normal to abnormal uterine (UtA), umbilical (UA) and middle cerebral artery (MCA) Doppler velocimetry throughout the third trimester in late-onset small for-gestational age (SGA) fetuses.

Methods

UtA, UA and MCA Doppler velocimetry was serially performed in a cohort of singleton consecutive late-onset SGA fetuses with normal doppler values at diagnosis. The rate of conversion of normal to abnormal Doppler values was evaluated by survival analysis. Longitudinal trends were modeled by means of multilevel analysis.

Results

A total number of study group included 150 SGA fetuses with normal Doppler upon diagnosis. Mean gestational age at inclusion and at delivery was 33. 23 (SD 1. 39) and 38. 14 (SD 1. 02) weeks, respectively. The longitudinal trends in UA PI and UtA PI showed no changes in contrast to MCA and the CPR demonstrated a clear and progressive decrease in values from 7th week to delivery. The mean MCA-PI was 1. 67 (SD 0. 16) while the mean CPR-PI was 2. 06 (SD 0. 71).

Conclusion

Late-onset SGA fetuses with normal Doppler velocimetry upon diagnosis show progression from 37 weeks' gestation with worsening CPR followed by a decrease in MCA-PI.

	Before delivery		At delivery		P value
	no	%	no	%	
UA					
Abnormal(PI>95 th centil)	33	22.0	36	24.0	0.549
Normal	117	78.0	114	76.0	
MCA					
Abnormal(PI<5 th centil)	30	20.0	66	44.0	<0.001(HS)
Normal	120	80.0	84	56.0	
CPR					
Abnormal(PI<5 th centil)	48	32	82	54.7	<0.001(HS)
Normal	102	68	68	45.3	