

The development curve of Very Low Birth Weight Preterm before 2 years old

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Facing the dim future of Very Low Birth Weight Preterm

Very Low Birth Weight Preterm is among the high-risk group of development delay. Current data has suggested preterm infants tend to lack certain degree of competence in motor, language, and cognitive abilities. The parents are always overwhelmed with grief while hearing the poor prognosis of the babies.

Find the silver lining in every child

Diving into the understanding of development curve at the first two years of the baby, enables us to early detect, predict and provide intervention. By knowing the potential and advantage ability of their children, the parents would find more faith in the future. Therefore, our aim of the study is to find the strength in every child and alleviate the anxiety of the parents.

The development curve at the first two years of birth

To have deeper insight into the development of preterm babies, our study group record the cognitive, language and motor competence of every child at six month, one-year-old and two-year-old respectively.

This retrospective study targets preterm babies in China Medical University Children Hospital from 01/01/2015 to 12/31/2019. We use Bayley Scales of Infant Development-III to evaluate the preterm cognitive composite score, language composite score and motor composite score and analyzes the data at three different timepoint (6, 12, 24 months).

Table 1. BSID-III composite and inventory scores at three timepoints

	component	age		
		Six month	One years old	Two years old
Composite score	cognitive	96.76(13.80)	95.77(12.76)	90.31(12.85)
	language	98.60(12.06)	91.17(12.36)	88.25(14.89)
	motor	94.68(16.00)	92.02(15.29)	90.49(14.91)
Inventory score	cognitive	9.35 (2.76)	9.16 (2.55)	8.06 (2.57)
	receptive language	9.46 (2.74)	8.17 (2.66)	8.05 (2.53)
	expressive language	10.02 (2.26)	8.81 (2.06)	7.88 (2.92)
	fine motor	9.02 (2.90)	8.83 (2.56)	8.35 (2.36)
	gross motor	9.09 (8.49)	8.49 (3.06)	8.47 (3.16)

n= 97

Through repeated measure ANOVA, we aim to find out whether there is significant difference between different composites at three time points. Firstly, we did homogeneity of variance test and within subject analysis. If the p value is < 0.05, we would do paired-sample test. The results were presented at Table two.

Table2 · Significant Difference Analysis between three time points

	Component	F test	Simple Main Effect
Composite score	cognitive	13.72*** (<i>p</i> < .01)	T1=T2>T3
	language	24.54*** (<i>p</i> < .01)	T1>T2>T3
	motor	4.44* (<i>p</i> < .05)	T1=T2>T3
Inventory score	cognitive	13.71*** (<i>p</i> < .01)	T1=T2>T3
	receptive language	11.74*** (<i>p</i> < .01)	T1=T2>T3
	expressive language	27.48*** (<i>p</i> < .01)	T1>T2>T3
	fine motor	2.62 (<i>p</i> = .075)	
	gross motor	2.75 (<i>p</i> = .066)	

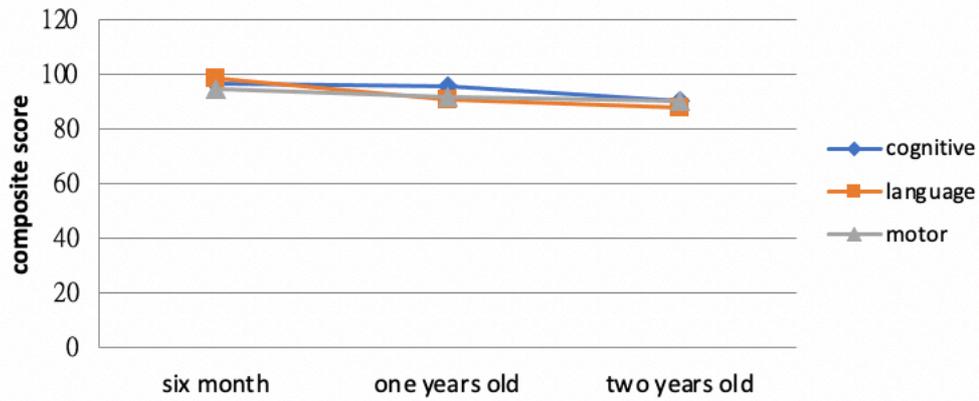
n= 97,

p < .05. ***p* < .01. ****p* < .001

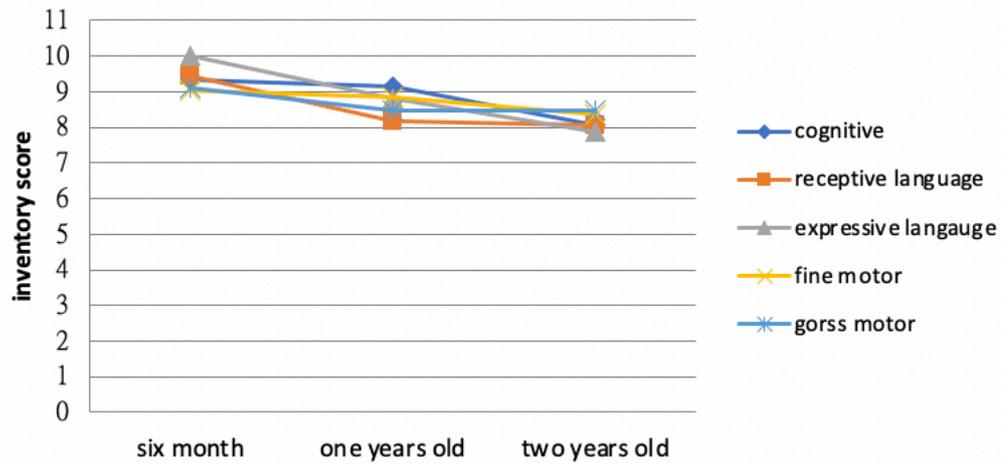
T1=six month · T2= one years old · T3=two years old

The result shows significant declined in expressive language and language composite at three time points. Moreover, the cognitive and motor composite, as well as cognitive and receptive score have significant difference between 2-year-old and other time points.

composite score at three timepoints



Inventory Score at three time points



Prospect for Future Research

Knowing the development curve isn't enough for parents and doctors. What keeps them nervous is the future of their children. Therefore, an accurate prediction of the preterm infants' ability in different aspects will be our next aim of study.

