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Neurological examination of late-preterm infants at term age

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ABSTRACT

Background: Late-preterm infants represent 70% of the whole preterm population.
Aims: To establish the range and frequency distribution of neonatal neurological scores in a large cohort of low risk late-preterm infants and the possible differences with full-term infants.
Methods: Three hundred-seventy-five healthy infants born between 34 and 36 weeks gestational age (GA) without major brain lesions were assessed between 39 and 41 weeks post-menstrual age using the Hammersmith Neonatal Neurologic Assessment and compared to the scores obtained using the same examination in full-term infants.
Results: Infants born at 35 and 36 weeks GA had similar median scores in 32 of the 34 items. Infants born at 34 weeks GA had a different profile of scores compared to those born at 35 and 36 weeks, mainly in the tone items. While in infants born at 34 weeks the assessment at term age showed similar median scores to those obtained in full-term infants in 25/34 items, in those born at 35 and 36 GA the number of scores similar to full-term infants increased to 29/34. The main differences involved the tone items, with more marked flexor tone in the limbs and better head control for those born at 35 and 36 weeks.
Conclusions: This data can help as reference data when examining late-preterm infants at term age to see where the individual child stands compared to age matched low risk infants and to identify signs that are outside the reported range in infants with lesions or other risk factors.

1. Introduction

The neurological assessment of the newborn has been widely studied in both preterm and full-term infant using the examination developed by Dubowitz and Dubowitz in 1981[1] and updated in 1998.[2,3] The examination has been applied to large cohorts of healthy full-term newborns and low risk preterm infants in order to establish the frequency distribution of the scores for each item in both groups.[2–5] Data on preterm infants show that those born between 25 and 34 weeks have less flexor limb tone, poorer head control but better visual following than term-born infants.[4,5]

No data is available for late-preterm infants, i.e. infants born at 34–36 weeks gestational age (GA), who represent the

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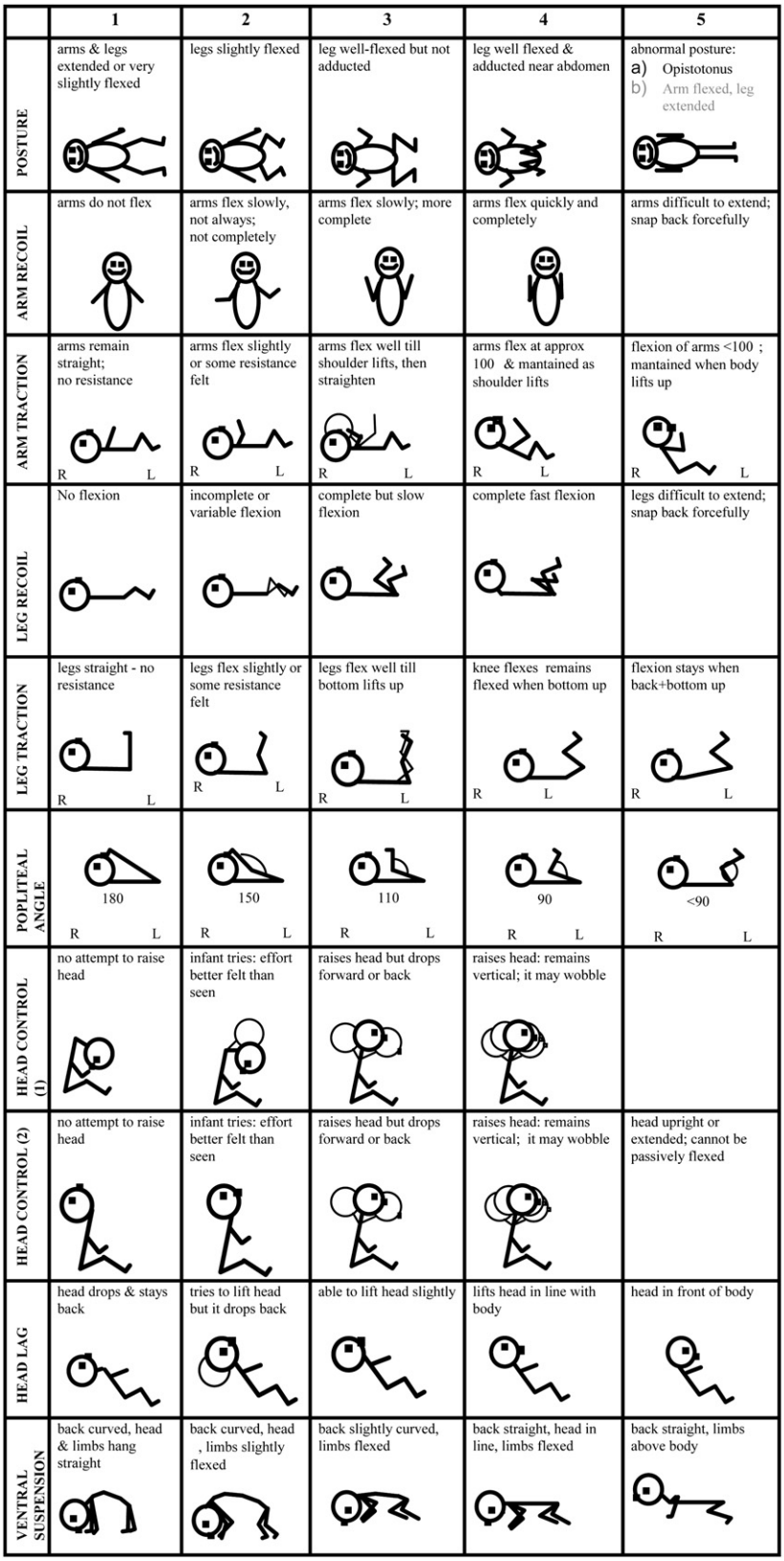

1	.5	2	.5	3	.5	4	.5	5	
0	0	1	1	54	5	36	0	3	34w
0	0	1	2	16	5	76	<1	0	35w
0	0	0	1	24	5	69	0	1	36w
0	0	0	0	6	3	90	1	0	Full term

1	.5	2	.5	3	.5	4	.5	5	
1	0	0	1	49	13	34	1	0	34w
0	1	0	3	17	9	70	<1	0	35w
0	0	0	1	19	8	71	0	1	36w
0	0	5	2	22	3	67	1	0	Full term

1	.5	2	.5	3	.5	4	.5	5	
3	3	24	5	54	6	5	0	0	34w
0	0	2	1	28	8	61	0	0	35w
0	0	1	1	41	5	52	0	0	36w
0	0	1	0	22	8	69	0	0	Full term

1	.5	2	.5	3	.5	4	.5	5	
0	0	4	1	34	3	57	0	1	34w
0	0	<1	<1	30	7	62	0	0	35w
0	0	10	<1	39	0	50	1	0	36w
0	0	3	1	4	1	91	0	0	Full term

1	.5	2	.5	3	.5	4	.5	5	
0	0	13	10	35	5	37	0	0	34w
0	0	1	1	24	1	73	0	0	35w
0	0	0	1	31	0	68	0	0	36w
0	0	0	1	12	12	72	0	3	Full term

1	.5	2	.5	3	.5	4	.5	5	
0	0	28	2	38	5	27	0	0	34w
0	0	4	1	54	4	37	0	0	35w
0	0	12	2	44	1	41	0	0	36w
0	0	5	5	19	20	51	0	0	Full term

1	.5	2	.5	3	.5	4	.5	5	
0	0	15	2	51	9	23	0	0	34w
0	0	1	1	43	10	45	0	0	35w
0	0	5	1	42	11	41	0	0	36w
0	0	0	6	26	12	56	0	0	Full term

1	.5	2	.5	3	.5	4	.5	5	
0	0	3	5	54	9	29	0	0	34w
0	0	4	3	44	5	44	0	0	35w
0	0	2	2	44	8	44	0	0	36w
0	0	0	4	29	15	52	0	0	Full term

1	.5	2	.5	3	.5	4	.5	5	
4	0	17	1	49	9	19	0	1	34w
0	0	4	4	56	15	21	0	0	35w
0	0	13	3	52	5	27	0	0	36w
0	0	9	4	44	12	31	0	0	Full term

1	.5	2	.5	3	.5	4	.5	5	
3	0	19	4	47	10	16	0	1	34w
0	0	4	6	47	24	19	0	0	35w
0	0	5	3	63	7	22	0	0	36w
0	0	4	5	47	16	28	0	0	Full term

Fig. 1 – Tone and posture items. The diagram of each item shows the range of scores in the 3 subgroups of late-preterm infants examined at term subdivided according to their gestational age and those of full-term infants examined in the first 48 h after birth, previously published.[3] The shading highlights the raw scores that were found in 90% of each group of preterm and term infants. The cell with highlighted border indicates the median scores.