Three weeks of parent-administered physiotherapy for very preterm infants improves motor performance at 37 weeks more than usual care

Synopsis


**Question:** Does parent-administered physiotherapy improve motor performance in medically stable preterm infants? **Design:** Randomised, controlled, multicentre trial with concealed allocation and blinded assessment. **Setting:** Three tertiary hospitals in Norway. **Participants:** Eligible infants had a gestational age <32 weeks and tolerated handling at 34 weeks postmenstrual age. Triplets, infants with malformations or syndromes, and infants after major surgery were excluded. Randomisation of 153 participants allocated 74 to parent-administered physiotherapy and 79 to a usual care control group. **Interventions:** Both groups received standard medical and nursing care. In addition, the intervention group received parent-administered physiotherapy for 10 minutes, twice a day, for 3 weeks when the infants were 34 to 36 weeks postmenstrual age. Therapy aimed to improve postural control, head control and midline orientation. One parent in each family was taught to administer the therapy during three consultations with a physiotherapist over 1 week. Parents received a booklet containing photos and instructions of activities. Therapy was individualised based on each infant’s level of development and tolerance for movement, and included at least one activity in each of four positions (prone, supine, side-lying, supported sitting) and one activity in transition between positions. Therapy also aimed to enhance parent-infant interactions. To ensure that the infants were actively participating in therapy, parents were taught to wait for the infant’s responses and to modify their support according to the infant’s reactions to handling. The control group received general information about positioning and handling. **Outcome measures:** The primary outcome was the Test of Infant Motor Performance (TIMP) at 37 weeks postmenstrual age. This test comprises 13 dichotomous observed items to rate spontaneous movements and 29 elicited items scores on rating scales of 0 to 4-6 points to access the infant’s responses to handling and to visual and auditory stimuli. **Results:** 135 infants completed the study. At 37 weeks, the TIMP z-score was significantly higher in the treatment group by 0.42 (95% CI 0.13 to 0.72). No adverse events were reported. The median number of sessions completed per day was 1.3 (IQR 0.8 to 1.6), with a median duration of 9 minutes (IQR 8 to 10). **Conclusion:** Three weeks of parent-administered physiotherapy implemented in very preterm infants improved motor performance at 37 weeks postmenstrual age more than usual care. The intervention was feasible and well tolerated by the infants.

**Provenance:** Invited. Not peer reviewed.

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Commentary

Motor impairment is one of the most common adverse outcomes of very preterm birth (born <32 weeks of gestation), with up to 50% of children born early having difficulties with postural control, manual dexterity and ball skills. Yet, there is very little evidence of effective interventions to improve motor performance in this population. Therefore, the results of this trial, which showed a moderate effect on motor performance with short duration (3 weeks) parent-administered intervention, were promising. A strength of the study was that parents documented the amount of therapy delivered during the intervention. Although there was large variation in the amount of therapy, the reasons for this were appropriate (eg, infant was sleeping, hungry, unwell) and showed that parents were able to adjust the therapy intensity to their individual baby’s needs with no difference in outcome. There was a higher rate of withdrawal from the study in the intervention group (15%) compared with the control group (4%). This may indicate that the intervention was difficult for some parents to administer in the neonatal intensive care unit, which is a period associated with high levels of parental anxiety and stress. Nonetheless, this research highlights the important role that physiotherapists have in the neonatal intensive care unit to work with parents and enhance the parent-infant interaction during this key period of development.

Although the benefits of this intervention are promising, the outcomes are only short term and further research planned to assess whether positive motor outcomes are sustained at 2 years of age will be imperative. This relatively short intervention has been shown to give very preterm infants a better start in life, yet it is likely that additional age-appropriate interventions throughout key periods of development will be needed to promote further improvements in motor outcomes.

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