A case of newborn premature triplets and the correlation of the HINE score and the Bayley-III, ToP and TOES scores. A discussion on how playfulness can be related to developmental outcome.

Introduction:

From infancy to the early years of development, children learn through play (Gray, 2017). Their neural circuits associated with play are activated by situations in their environment.

Newborns cortex begins to develop neural pathways from the beginning as it learns to move their limbs against gravity and eventually change positions into space, exploring and learning from their environment (Algra, 2021).

Neuroscientific research shows that play stimulates neural connections in the brain, particularly in the prefrontal cortex, which is associated with decision-making and social behavior (Pellis & Pellis, 2010).

Objectives:

Do children at risk of developing neurological deficits show differences in playfulness? Is it possible to change the play repertoire by guiding families towards a more playful interaction with their children and how is that associated with the final developmental outcome?

Method:

Examination of the case of premature triplets, two boys and a girl without pathological MRI findings, at moderate to low risk on their neurological outcome. Gestational age of 34 weeks +1 days.

All three infants were assigned to receive early physiotherapy intervention after the first HINE examination at second month CA (Algra, 2021).

A family-centered intervention model was applied, incorporating playfulness and sensorimotor components into early traditional physiotherapy intervention. Babies were stimulated to change their motor behavior and motivated by providing the opportunities to move free into the space.

Infants were evaluated with Hammersmith Infant Neurological Evaluation (HINE) and Bayley-III, Test of playfulness (ToP) and Test of Environmental Supportiveness (TOES) at 12 and 18 months CA, by blinded assessors.

Results:

The analysis of the assessments for the three babies showed association between the components of play, the environmental supportiveness, motor behavior and the other trajectories of development. These factors led to the strengthening of the family-centered intervention model, based on playfulness.

Conclusion:

This case highlights the critical role of enhancing environmental factors that can help foster children's playfulness (Hamm, 2006). Enriching the environment with access to diverse and open play materials and active engagement with peers is associated with increased scores of playfulness and better neurodevelopmental outcomes (Hakstad, 2022).

Hammersmith Infant Neurological Evaluation (HINE)

Bayley Scales of Infant and Toddler Development 3rd edition (Bayley-III)

Test of Playfulness (ToP)

Test of Environmental Supportiveness (TOES)

Corrected Age (CA)

References

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