



NEED & SCOPE OF NEONATAL THERAPY IN INDIA

Hemant Nandgaonkar*	Assistant Professor, Occupational Therapy, Seth Gs Medical College, KEM Hospital, Mumbai - 400012. *Corresponding Author
Shailaja Jaywant	Assistant Professor, Occupational Therapy, Lokmanya Tilak Municipal Medical College, Mumbai.
Sanika Gawade	Senior Occupational Therapist, Seth Gs Medical College, KEM Hospital, Mumbai - 400012.
Harsha Bhatia	Occupational Therapist, Kokilaben Dhirubai Ambani Hospital, Mumbai

ABSTRACT In India, neurodevelopmental disorders in children are a major public health problem. In these scenarios, Neonatal Therapy, by addressing the synergistic neurodevelopmental systems, can promote optimal long-term developmental outcomes and nurture infant-parent relationships. Because of India's cultural diversity, neonatal therapists must adapt early support practices. In summary, this article justifies the need for neonatal therapists in the NICU and their scope of practice.

KEYWORDS :**BACKGROUND**

Children's neurodevelopmental disorders (NDDs) pose a significant public health burden in India. Children with a history of home birth, delayed crying or difficult breathing at birth (perinatal asphyxia), neonatal illness requiring hospitalization, neurological/brain infections, low birth weight (LBW) (2.5 kg) and/or birth before 37 weeks of gestation (prematurity), and stunting were all risk factors for childhood NDDs. The majority of NDD risk factors were modifiable and amenable to public health interventions. The developmental potential of children who survived childhood as a result of child survival programs receives insufficient attention. (Collaborators, 2018) This population has a high prevalence of motor, cognitive, behavioral, academic, sensory processing, and developmental disabilities. (Arora NK, 2018)

The rate of pre term births (PTB) showed an increasing trend with the high frequency of occurrence in India. (Thangjam Chitralkha Devi, 2021) The preterm infants need Protected environment. PTB infants bodies are not yet fully developed, they may have problems breathing and can also suffer from other complications including infections. (Drugs.com, 2021)

Over the past 20 - 30 years the incidence of preterm birth in developing countries has been about 12% and in high-income countries 9%. Across 184 countries, the rate of preterm birth ranges from 5% to 18% of babies born. In India, out of 27 million babies born every year (2010 data), 3.5 million babies born are premature.

Due to the other serious complications such as RDS, cardiac anomalies or complications such as hypothermia, hypoglycemia, hyperbilirubinemia Developmental outcome is not a priority. Survival is an established indicator. Developmental screening and necessary intervention are neglected, which can have the long-term effect on child development.

There is a trend in the high-risk population to refer for intervention after discharge. There is less of a preference for preventive measures. In India, the health-care system is based on a more rehabilitative approach. In addition, instead of being covered by the government or insurance, families must bear the cost of neonatal therapeutic services.

What exactly is Neonatal Therapy?

"Neonatal Therapy is the art and science of integrating typical development of the infant and family into the environment of the NICU. It incorporates theories and scopes of practice from the respective disciplines of occupational therapy, physical therapy and speech language pathology. It requires advanced knowledge of the diagnoses and medical interventions inherent to the NICU setting in order to provide safe and effective assessment, planning and treatment. At this early point in the lifespan, Neonatal Therapy promotes optimal long-term developmental outcomes and nurtures infant-parent relationships by addressing the following synergistic neuro developmental systems: neurobehavioral, neuromotor,

neuroendocrine, musculoskeletal, sensory, and psychosocial. These systems provide the foundation for the development of functional skills." (Sturdivant, 2013)

The majority of NICUs in India lack a neonatal therapist on their team. The newborn brain is capable of making both temporary and permanent changes to the strength and number of its synaptic neuronal connections. These adaptations are based upon sensory input from different stimuli, environmental factors and experiences.

This adaptive capacity is known as neuroplasticity and peaks early in life because of the rapid brain growth during that time frame. Neuroplasticity can be positive or negative. Because the brain is actively being "hard wired" throughout the infant's NICU stay, both functional and dysfunctional synapses are being formed or deleted ("pruned") based upon the infant's unique experiences.

The need arises to educate other team members about the role of neonatal therapist. The early care in NICU can prevent morbidity in preterm infants. Early interventions frequently target the child's environment, such as environmental factor regulation and parental education, with the assumption that a positive environment and experience will lead to improved neuronal connections and neurodevelopment.

The specialized services to take care of Neonates & their family for effective Developmental Supportive care. Thus, enhancing the family centered approach as a, need of an hour.

Why Neonatal Therapists?

In the recent review of randomized controlled trials or quasi-randomized controlled trials of direct therapy early intervention for infants with a gestational age of less than 37 weeks, initiated in the NICU and delivered by a therapist or parent with therapist support. Quality was evaluated using the Cochrane standardized risk of bias assessment tool. Recommendations were made using the Grading of Recommendations, Assessment, Development and Evaluations approach. daily PDMI (parent-delivered motor intervention) improves motor and cognitive outcomes in the short-term and possibly long-term. TDPCI (therapist-delivered postural control intervention) is effective in promoting short-term gains in motor development. Developmental care programs designed by a neonatal therapist appear to be effective in improving short-term behavior but are inconclusive for motor and cognitive outcomes or long-term behavioral outcomes.

Early interventions often target the child's environment, like regulation of environmental factors, parental education and assumes that a positive environment will subsequently improve child outcomes. Developmental care, especially when initiated since birth, may improve some aspects of developmental outcomes in preterm newborns.

As therapists can offer support to the babies and families for the long term from the developmental perspective. The therapists are all equipped with theoretical knowledge and practice skills. It includes the facilitation of normal motor patterns, cognitive and social development, as well as the protection of the immature and developing brain.

What is the practice's scope?

Neonatal Therapists offer family-centered neuroprotective care to infants who are at high risk of developmental delay and their families. Therapists play important role in identifying stress signs & offer appropriate developmental care to protect further insults to immature brain. Neonatal therapists provide age-appropriate protection, support, and stimulation that is risk-adjusted. (Craig, 2020)

They participate in standardized, observational, and non-standardized methods of evaluation. It will be a continuous evaluation of the environment, neurobehavior, neuromotor, pre-feeding skills, oral feeding -objective assessment, determining infants' readiness prior to feeding, and oral motor stimulations.

The survival of neonates in Neonatal Intensive Care Unit (NICU) is reliant on various medical intervention including venipuncture, attachment and removal of sensors required for measuring physiological signals etc, which are unpleasant and painful. Painful Events in the Neonatal Intensive Care Unit are likely to evoke the Stress Response. Frequent activation of the Stress response can impact neonate's brain development through stress-hormone-induced reductions in neuronal and synaptic growth or epigenetically through demethylation of genes. The Neonatal therapists can provide non-pharmacological interventions to manage pain.

In addition to baby and family services, therapists can raise awareness and develop educational programs. At the unit level, therapists must also participate in the development of programs for the facility and work on policy formulation. Locally available devices and equipment required for the therapeutic intervention must be researched and developed. Given India's diversity, there is an urgent need to develop protocols that take local cultural needs into account.

Cultural Adaptation

In India, families practice a variety of rituals, each with its own set of beliefs concerning newborn care. Although some practices can be therapeutic, many of the practices that were being used could be harmful to the baby. Although information on newborn care is provided to women attending antenatal clinics and those in post-natal units through health education, there is a critical need to educate not only mothers but also the family as a unit about harmful practices while emphasizing the components of essential newborn care. Culturally, the elder generation is regarded as the best guides, despite some erroneous beliefs that babies may find difficult to tolerate. (Mary Jenifer, 2019)

Relationships between traditional and biomedical practices in the context of cultural ecologies of health are critical for improving the efficacy of health education interventions and policies. Traditional health practices are widely assumed to have a negative impact on health, despite a lack of evidence. (Cristine H. Legare, 2020)

In this context, the neonatal therapist must adapt early support practices in order to promote and support the development of the baby.

REFERENCES

1. Arora NK, N. M. (2018). Neurodevelopmental disorders in children aged 2–9 years: Population-based burden estimates across five regions in India. *PLoS Med*, 15(7): e1002615.
2. Collaborators, G. R. (2018). Developmental disabilities among children younger than 5 years in 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet Global Health*, E1100.
3. Craig, J. S. (2020). Risk-adjusted/neuroprotective care services in the NICU: the elemental role of the neonatal therapist (OT, PT, SLP). *J Perinatol*, 549.
4. Cristine H. Legare, S. A. (2020). Perinatal risk and the cultural ecology of health in Bihar, India. *Phil. Trans. R. Soc. B*, 375.
5. Drugs.com. (2021, 8 22). *Growth and Development of Premature Babies*. From Drugs.com: <https://www.drugs.com/cg/growth-and-development-of-premature-babies.html>
6. Mary Jenifer, E. E. (2019). Cultural practices and beliefs regarding newborn care in South India. *Indian Journal of Continuing Nursing Education*, 106.
7. Sturdivant, C. (2013). A Collaborative Approach to Defining Neonatal Therapy. *Newborn and Infant Nursing Reviews*.
8. Thangjam Chitralekha Devi, H. S. (2021). Prevalence and associated risk factors of preterm birth in India: A review. *Journal of Public Health and Development*, 188-205. From <https://www.researchgate.net/profile/Thangjam-Chitralekha-Devi/publication/351840709-Prevalence-and-associated-risk-factors-of-preterm-birth-in-India-A-review/links/60ace163458515bfb09f14a4/Prevalence-and-associated-risk-factors-of-preterm-birth-in-India->