IJNH

Review Article

Newborn at a Distance in Hospital: Review on Positive Effect of Humanized Care on Developmental Outcome Parameters

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Abstract

In a methodological approach, this best evidence review article commences with a fleeting trail of human life as it begins in health-care environment. It provides an explorative overview of various clinical research study results undertaken on newborns in a rural tertiary care hospital. The second section considers six different research approaches to "humanized care of newborns" toward enhancing developmentally supportive care that has the potential to positively affect outcome parameters in spite of the criticality of illness. Significant supportive evidence was observed through clinical interventions that promote baby-friendly attitude, gentle handling and positioning of newborns as a routine, and feeding with increased mothers' milk when needed for newborns under phototherapy, maintained physiological stability. Moreover, providing rhythmic gentle, tactile, kinesthetic stimulation, giving massage with traditional oils and patterns, establishing auditory, vestibular, olfactory, and visual system stimulation improved outcome prognosis of both normal and critically ill newborns. This moment in time when social distancing is becoming a daily norm, "technological world" needs "humanizing" more than ever. Because there is a need to reinvigorate a movement that can incorporate nature, art, and science in hospitals so that newborns are not kept at "distance" from nurses, doctors, and parents physically, physiologically, psychologically, socially, and emotionally for care without compromising quality and medical requirements. Such an approach to treat each newborn as a unique individual stimulates the ecology around as well ensure maximum comfort to overcome painful and an alien like environment faced by baby on its transport from womb to extra uterine life.

Keywords: Humanized care, Distance, New born, Outcome parameters, Positive effects

Introduction

Pregnancy is a gift of God who made a tiny planet within mother for the growth of a tiny structure to develop in to a unique human being. During the stay in that wonderful planet called "womb," baby is gently wrapped, comfortably nested in the warm amniotic fluid, well protected from infections, injuries, light, and sound, thus effectively shielded with its basic needs are admirably met by uteroplacental package.

Access this article online
Website: http://innovationalpublishers.com/Journal/ijnh
ISSN No: 2454-4906
DOI: 10.31690/ijnh.2020.v06i02.006

When a baby is born to come to the macro planet called earth, the first alien that he/she meets is a nurse/doctor. Nurse wipes him/her, cuts umbilical cord to transport his/her life from tiny planet, checks weight, put him/her on to mother's breast that enables life to continue on to macro planet outside. This is commonly called as essential newborn care in medical parlance.

While providing essential newborn care nurses must often remember that every child is a distinct individual with unique needs and have to be taken care in a unique way. A gentle touch, a smoothening voice and a lovable care ensure that nurses are not an alien but the first messiah of his/her life. Some newborns need to be kept in NICU for monitoring and receive care when they are at risk for survival. These newborns need more personal attention in spite of hi-tech environment of NICU which in other words means humanized care, an

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approach advocated for more than 2 decades now. Humanized care is not an alternative to hi-tech care but is complementary to provide best or holistic care to newborns. A good mix and balance between technology based care and humane care enhance survival with quality outcome on survival.[1]

Painful procedures and investigations must be kept at a bare minimum, without compromising quality of care. Newborns should be reared in such a way that it stimulates the ecology around him/her to ensure maximum comfort. The technology apparatus at NICU loses its meaning if it is not integrated into the humanization process of care and if it is not linked to the ethical principles for life maintenance and value.[2] They should be handled with gentle touch, love, and compassion by which nurses and doctors should feel "connected" and "tuned" to newborns under their care. Promotion of humanized care implies a greater commitment, sensitivity, and zeal in the art of taking care, emphasizing, above all, actions of comfort, newborn safety, family reception, and attention in the ambience.[3] Such humanized care involves values, willingness, and a commitment to care beyond the call of profession.

This article aimed to unravel different ways in which humanized care as a design goal influenced clinically in six different experimental research studies in a tertiary care hospital. Samples collectively involved 300 newborns selected prospectively at birth in the hospital over a period of 2 years, to understand better the convalescing power of humanization in newborn care and thrust its spread in this era of physical containments. Principles of humanized care in these studies of pretest-posttest design with control group approach have revealed in its implicit ways opposed the "dehumanized" modern hospital methods, which operated as a material representation of modern medical practice.

It served as a function for the holistic dimensions of health care by tending to newborn. Care delivery practice was spontaneous, cordial, attentive, and natural so that the infant does not get distressed in the hospital environment and respond with confidence to nurse. By this, nurses trained were able to provide individualized humanized care to newborns by adapting a "flexible approach" that increased developmentally supportive diversity, protection, and preservation of newborn's dignity evidenced by parents interaction with each other in a reciprocal, authentic, and intentional way. Each of the study results is presented below with focus to each individual principle of humanized newborn care approach.

Humanized Care Approach 1: Baby-Friendly Attitude, Gentle Handling and Positioning

Foremost principle of humanized care is to create a baby friendly – womb-like ambience, to provide optimum stimulus for optimum growth. It is a common notion that very low birth weight babies are being looked after in an unpleasant, noisy, too bright, and aggressive invasive environment without any concern regarding their physiological needs, comfort, and periods of rest for the individual baby.[2] But do the newborns receive baby-friendly environment in hospitals however high risk they are diagnosed with? This question needs to be answered by all health-care personnel involved in the management of newborns. Social changes brought about by nuclear family rearing has forced many to ask whether care practices, prejudices, and medical technology recommendations commensurate with scientific reality?[3,4]

Posture refers to the positioning or alignment of various parts of body in relation to one another. Good posture can help to improve circulation, enhance digestion, improve sleep, and prevent cramping of internal organs. Newborn put on a "nest" like crib feel safe and secure as evidenced by its vital parameters. Beyond that it will also encourage good posture, muscle movements, provide comfort, help in growth, development, and enhance easy adaptation to the new environment, from intrauterine aquatic to external atmospheric environment.[5]

Ingale *et al*. studied effectiveness of nesting on posture and movements in healthy preterm newborns.[5] The study revealed that nesting was effective as to improve posture score from average (57.5%) to good (92.7%) and movements score from severe discomfort (70%) to fullness of comfort (33.1%). Results are in synch with conclusion that nesting, posture, and movements in direct proportion improved physiological parameters in relation to positive health outcome in healthy preterm newborns.

Humanized Care Approach 2: Feeding Only with Mothers' Milk

Breast milk is unquestionably the "Nectar" (Amrit) for newborn. As per the UNICEF and WHO, immediate initiation and exclusive breastfeeding for 6 months are essential for reducing neonatal mortality, malnutrition, and young child survival.[6] A newborn baby has only three demands. They are the warmth in arms of its mother, milk from her breasts, and security in the ambience of her presence. Breastfeeding satisfies all three.[7] A study by Shelar *et al*. echoed this in today's context where effectiveness of increased breastfeeding on temperature stability and hydration among newborns with hyperbilirubinemia receiving phototherapy was experimented. The study outcome disclosed that increased breastfeeding was effective in improving hydration among newborns with hyperbilirubinemia at a significant level. Hence, it was reiterated that breastfeeding is still the cost effective and beneficial way to improve hydration of newborns with hyperbilirubinemia rather than parenteral therapy.[7]

Humanized Care Approach 3: Swaddling for Physiological Stability

Newborns are not mini-adults because they have anatomical and functional immaturity of various body organs at different stages of life. They may rapidly develop life-threatening medical

emergencies due to their physiological instability. Newborn babies are like flowers, they can rapidly wither following an acute illness but are endowed with tremendous recuperative capabilities and when tended with care, compassion, and due concern for their physiological handicaps, they bloom back to life with equal ease.

A study to evaluate effect of swaddling on physiological and neurobehavioral parameters among neonates conducted by Shinde *et al*.[8] chose multiple monitoring parameters to conclude on physiological stability. Results found that swaddling is effective to maintain normal range of physiological and neurobehavioral parameters among neonates. Moreover, those neonates who received swaddling did not develop any complications during their stay in NICU an observation also reported by Jacob *et al*.[6]

Humanized Care Approach 4: Rhythmic Gentle, Tactile, and Kinesthetic Stimulation

Mothers should be encouraged to provide regular skin to skin contact to her premature baby when admitted in NICU. It enables sensation of comfort, warmth, and "unique" smell of mother by newborn. It improves mother infant bonding and promotes breastfeeding. When baby is held against mother's chest, he/she is reminded of the *in utero* music heard by newborn in the womb that was produced by uterine blood flow and maternal heartbeat. During skin-to-skin contact, most babies feel comfortable, stop crying, and achieve physiological stability including relief from intractable apneic attacks. There is a possibility of transfer of tremendous electromagnetic energy from a compassionate mother to her tiny baby by producing calmness, comfort, promotion of physical growth, autonomic stability, and augmentation of forces of healing.[1]

Mathai *et al*.[9] performed a controlled trial on effects of tactile-kinesthetic stimulation in preterm by on physiologic parameters, physical growth, and behavioral development in premature unit (growing nursery) of a large, teaching hospital with 48 healthy preterm with birth weights between 1000 and 2000 g. Interventions done on neonates were systematically allocated into test and control groups. Test babies received tactile-kinesthetic stimulation in the form of a structured baby massage from day 3 to term corrected age. They were observed for changes in vital parameters (heart rate, respiration, temperature, and oxygen saturation) during the first few days of stimulation in hospital. Thereafter, massage was continued at home. Changes in weight, length, head circumference, and neurobehavior (Brazelton Neurobehavioral Assessment Scale) were assessed in both groups before, during, and after study period. Results showed an increase in heart rate (within physiologic range) in test group during stimulation. This group also showed a weight gain of 4.24 g/day more than controls, which was statistically significant. On the Brazelton scale, test group showed statistically significant improved scores on "orientation," "range of state" and "regulation of state," and "autonomic stability at follow-up." No significant complications were noted. A positive correlation was found between duration of stimulation in days and weight gain in grams but this did not reach statistical significance. Furthermore, the study findings by Vaidyanathan and Chandekar[10] are similar to conclusion that tactile kinesthetic stimulation when administered to healthy, preterm infants had beneficial effects on growth and behavioral development with no adverse effects on physiologic parameters.

Humanized Care Approach 5: Baby Massage with Traditional Oils and Patterns

Touch is a primary form of human communication and stimulation programs of various kinds that influence long-term developmental outcome of premature babies through improved neurophysiologic maturation and growth. Although the underlying mechanisms of massage therapy effects on growth and development are yet unknown, Field[11] proposed several possibilities. One possibility [Figures 1 and 2] is that massage therapy increases vagal activity, which, in turn,

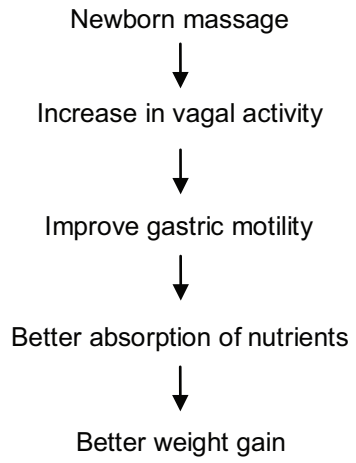

Figure 1: Mechanism of massage therapy in weight gain

Figure 2: Touch and massage therapy in newborn

releases food absorption hormones such as gastric and insulin, thus explaining the weight gain in premature infants.[11,12]

Massage of newborns can be done using a lubricant to reduce the friction between body surfaces and caregiver. To choose an appropriate lubricant, availability, cost, and safety need to be considered. Among all lubricants, coconut oil and sunflower oil have been most commonly mentioned in literature about infant massage therapy. Massage is thus an intervention that may be useful in premature infants and newborns with low birth weight. Performing massage therapy for infants in NICU is a kind of alternative treatment that has been the subject of debates since long.[11-13] Studies have also indicated that infants who receive massage are usually better adapted to environmental stressors and suffer less negative effects.

Effects of coconut oil massage on changes in weight and behavioral response among LBW newborns were studied by Gadekar *et al*.[14] Traditional Indian grandmothers' pattern of massaging newborns using coconut oil with adaptation of Field's neonatal massage therapy pattern was the intervention. It was found that massage increased weight of newborns in control group with a mean score of 1838 g in comparison to increase to a means score of 1900 g in experimental group. Total weight gain for control group was 27 g and in experimental group was 134 g.

It also enhanced behavioral response in intervention group significantly (calculated t-value = 7.09). Major conclusions drawn were supportive of study[15] which also inferred that coconut oil massage was effective in improving weight and behavioral response which are beneficial to newborns than the newborns who did not receive oil massage.

Humanized Care Approach 6: Auditory, Vestibular, Olfactory, and Visual System Stimulation

Music is credited to have numerous positive qualities and capabilities where it has shown to enhance growth of even plants. Studies have shown that soft and melodious music to individual newborns enhances their physiologic stability and improves weight gain velocity. It has been observed that babies seem to enjoy classical or gentle instrumental music. Babies can be made to listen to the taped voice of parents and family members on and off. This enhances parent infant bonding and gives family members the sense of involvement in care of their baby.[1]

Vestibular structures are morphologically well developed at birth but continue to develop during the first postnatal month. Vestibular system has a close relationship with cerebellum, which is critical for motor control coordination and timing of movements. Important functions of the vestibular system are perception of movement, oculomotor, postural control, and spatial memory.

Babies should be held in hands and encouraged to develop an eye-to-eye contact with family member/caregiver who holds. Normally often, they turn to the source of diffuse light whereas dim light encourages babies to open their eyes and look around.[16] Such visual stimuli can be provided with help of bright colored toys and pictures. A picture with distinct facial pattern can be placed outside the incubator or crib wall in line with the gaze of newborn.

Newborns should not be exposed to unpleasant or noxious odors. Alcohol, betadine, or other skin scrub bottles should be opened away from newborn. Medicated swabs should be removed from incubator immediately after their use. Newborn should not be dabbed with hair spray or cologne. Newborns are sensitive and attracted to the smell of their mother's milk, which is used for rooting the nipple during breastfeeding. Gauze pads or cotton balls soaked in mother's milk can be kept inside the incubator to stimulate olfactory system[1] and changed periodically to avoid any contamination.[1-3,10,17] Studies provide confirmed evidence with results, whereby health-care providers too feel gratified in providing humanized care and this is why, the perception of care has holistic and human characteristics.

Research literature now available in plenty, have time, and again emphasized that there is an imminent need to synthesize the art and science of neonatal nursing, to render an algorithmic humanized care to newborns that begin from believing it firm to ensure optimum well-being [Figure 3]. Humanized care is not an alternative to high-tech care, but is complementary to provide best holistic care to newborns. Every nurse and doctor should strive to provide a good mix of balance between hi-tech based care and humanized care as a professional norm is a message that this article aims to nail deep. Newborns regardless of their place of birth globally should be entitled to receive best possible humanized care from medical, technological, psychological, and from emotional perspective.

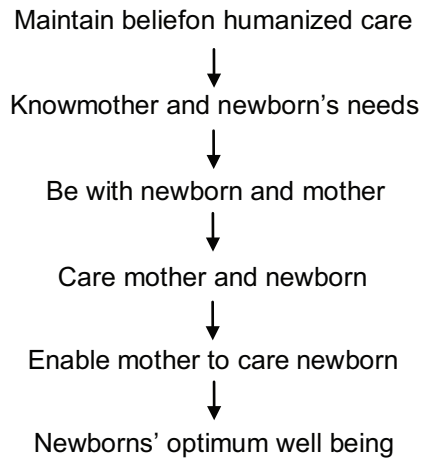

Figure 3: Algorithmic structure of humanized care of newborns

Conclusion

Growing hi-tech care mandates non-touch treatment but in that process, humanly comfort of newborn should not be ignored in an era of social distancing. Humanized care interventions keep humans around newborn "connected" in hospital as it contributes significantly to optimum developmental outcome and has potential to positively transform newborn care patterns.

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How to cite this article: Bhosale V, Radha V, Shelar S, Ingale S, Shinde A, Gadekar N. Newborn at a Distance in Hospital: Review on Positive Effect of Humanized Care on Developmental Outcome Parameters. Innov J Nurs Healthc. 2020;6(2):24-28.