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Review Article

KUMARAGARA AN ANCIENT NEONATAL INTENSIVE CARE UNIT

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Abstract

The organization of a good quality NICU is essential for reducing the neonatal mortality and improving the quality of life. Care in the NICU is defined by effort in design, equipment selection, policies, care protocols and staff training to maintain the basic physical, sensory, interpersonal needs of the infant and also have intermediate or continuing care areas for babies who are not as sick but need specialized nursing care. The in-utero environment of a developing fetus is characterized by generalized extremity flexion and containment, limited light and noise exposure, sleep cycle preservation and unrestricted access to mom via somatosensory, auditory and chemosensory pathways. This environment is conducive to positive sensory input which is crucial for normal fetal development. In Samhita period the concept of NICU is very much developed as according to a newborn care. Along with design, equipment, policies, protocols and staff the role of Disha and Vastu were included in Kumaragara.

Keywords: NICU, Kumaragara, Samhita, Sutikagara, Rakshkarama

INTRODUCTION

In Ayurveda Kumaragara (NICU) is mainly described in detail in Charaka¹ and Vagbhatta². They described it separately from Sutikagara for those newborn who are not well or his / her mother cannot breastfeed them due to any disease. It has some similarity with today's NICU. In Sushruta Samhita and Astanga hridaya Kumaragara is not described as separate subject. They described it within Sutikagar for maintain hygienic and healthy environment for wellbeing of newborn in Rakshkarama vidhan. A neonatal intensive care unit, usually shortened NICU and also called a new born intensive care unit, intensive care nursery (ICN) and special care baby unit (SCBU), is a unit of a hospital specializing in the care of ill or premature new born infants. The NICU is distinct from the special care nursery (SCN) in providing a high level of intensive care to premature infants while the SCN provides specialized care for infants with less severe medical problems.³⁻⁶ Neonatal intensive care units (NICUs) are vital for the survival of many neonates, yet the characteristics of this environment also involve stressors that pose a risk to development. NICU were developed in the 1950s and 1960s by pediatricians to provide better temperature support, isolation from infections risk, specialized feeding and access to specialized equipment and resources. Since the mid-1980s, these programs have emphasized the importance of providing the premature infant with early experiences that support development.^{7,8}

Construction of Kumaragara in Ancient Period

One conversant with science of building should construct a house of the following kind for the new born child. It should be large or spacious, delightful, well lighted, unexposed to the wind, with one portion well ventilated, strong, free from

animals that live by preying on other, animals that have fangs, mice and insects and with places conveniently situated for water, urination, passing of stools and cooking. In very similar way we are using modified technique for the same purpose in today's NICU that are mentioned above like proper light sources, ventilation, hygiene maintenance. It should be well suited to requirement of the season.¹⁻² Parivrittm with Ksauma Vastra (Warped the child in soft and clean cloths). It should have all equipment in respect to beds and seats and coverlets suited to the season. In very similar way we are using modified technique as Radiant warmers, Air conditioners to provide thermo neutral environment to newborn. It should have everything calculated for the proper protection of the child and rites should be performed that are ordained for making offerings to the deities, for Mangala homa and for expiation. It should also be filled with men endowed and bodily and mental purity possessed of years, physicians, and persons devoted to the good of the child and its parents. Even these are the ordinance relating to the apartments in which the child is to be housed. In very similar way we are using modified technique to provide experienced staff and monitoring equipments for proper care and monitoring of Newborn. The beds, coverlets and sheets for the use of the child should be soft, light and clean and of agreeable smell. Beds, coverlets and sheets when befouled with sweat and dirt and insects and urine, stools, should be taken out. If other (fresh) beds and covers be not obtainable, then those befouled should be adequately washed and fumigated and cleaned and dried and give to the child house for use. The following should be used for fumigating clothes and beds and coverlets - viz. Mustard seeds, Assafotida (*Ferula foetida*)⁹⁻¹¹, Guggulu (*Commifera mukul*)¹², Vacha (*Acarus calamus*)¹³, Tila (*Sesamum indicum*)¹⁴, Asoka

(*Saraca asoca*)¹⁵ and sloughs of snakes. These should be applied to the washed clothes). Gems should also be worn by the child. Also little portion should be cut off from the ends of the right horns of living rhinoceroses, Rurus (kind of deer), Gavayas and bovine bulls. Mantras also (written on scraps of paper or bark of Bhurjja), should be worn. (These scraps of paper or bark are put into or enclosed in small drums of gold, or silver or copper or iron and worn on the upper area or by a string round to waist or hanging from the neck. Such herbs also as Aindri, Brahmi and Jivaka should be (reduced to powder) and mixed with Ghee. (The smoke of this way we are using modified techniques like fumigation with Formalin solution, and use of (use Guduchi as Substitute). Risabhaka (Vansalochana or bamboo) and other objects which Brahmans (conversant with Atharva Veda) may declare as beneficial should be worn. According to samhita Grantham above mentioned techniques are used for protection of newborn from Grahabadha and Jiva-Jantu. In very similar we use disinfectants for protection of newborn from Microbes, and Nosocomical infections.

Needs for Modern NICU

Location

The neonatal unit should be located as close as possible to the labour rooms and obstetric operation theatre to facilitate prompt transfer of sick and high-risk infants.

Ventilation

Effective air ventilation of nursery is essential to reduce Nosocomical infections. A simple method to achieve satisfactory ventilation consists of provision of exhaust for in a reverse direction near the ceiling for input of fresh uncontaminated air. The use of chemical air disinfection and ultraviolet lamps are no more recommended.

Lighting

The nursery must be well illuminated and painted white or slightly off white to permit prompt and early detection of jaundice and cyanosis. Spot illumination for various procedures can be provided by a portable angle poise lamp. Exposure of preterm babies to strong light has been incriminated as a risk factor for the development of retinopathy of prematurity.

Environmental Temperature and Humidity

The temperature of the nursery complex must be maintained around $28 \pm 2^{\circ}\text{C}$ in order to minimize effects of thermal stress on the babies. This is best achieved by air conditioning. In places where air conditioning is not feasible temperature can be well maintained in winter by use of radiant heaters and not air blowers.

Acoustic Characteristics

Sound intensity in the nursery should not exceed 75 db to protect hearing of nursery personnel and infants. It is desirable to have effective sound proofing of callings, walls and floor when a new nursery is designed.

Handing and Social Contacts

Infants should be exposed to gentle and soothing tactile, kinesthetic, vestibular, motor auditory and visual experience to provide opportunities for early learning and improvement in behavior.

Communication System

The nursery complex should be provided with an intercom system so that additional person can be called for help in case of emergency without leaving the sick infant.

Indication for Treatment of Ill Child

Hence, when the child is crying or not feeding, or not doing anything (lethargic), or if any disease come to the child, the carefully examined it be the five-fold consideration of Nature, inducing cause, premonitory indication developed symptoms and treatment and attending also to the especial circumstances connected with patient drugs, place and time. The physician should get himself to the treatment, using remedies, consisting of those that are sweet, mild, light agreeable to the scant, and cool since those are well suited to child., It is by this means that children should recover very soon.¹⁶⁻²⁷

CONCLUSION

NICU involves elaborate and expensive facilities and a dedicated team of administrators, doctors, nurses and technologists. We are using Today's NICU for treatment of ill newborns and prevention from diseases of healthy preterm babies as Kumaragara was used in ancient period.

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