

REVIEW ARTICLE

Role of Ayurveda in Navjata Shishu Paricharya W.S.R. to Care of Newborn – A Review Study

Manish Gehlot*^{ORCID}, Praharsh Verma^{ORCID}

1,2-Junior Resident, Department of Kaumarbhritya and Balroga IMS-BHU, Varanasi, Uttar Pradesh, India.

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ABSTRACT

Kaumarbhritya, one of the eight branches of *Ayurveda*, is known as the science related with care of the children. This care of the new born right from just after birth till the first feeding has been described by three major treatise of *Ayurveda*, the *Brihatrayi*. The steps included in *Navjata shishu Paricharya* included are *Pranapratyagamana* (neonatal resuscitation), *Ulva parimarjanama* (cleaning of vernix caseosa), *Naalchedana* (cutting of umbilical cord), *Snana* (neonatal bath), *Mukh vishodhana* (cleaning of oral cavity), *Garbhodaka vamana* (stomach wash), *Jatakarma* (Birth rite), and *Raksha Karma* (protection of baby). The main objective of neonatal resuscitation is to restore adequate breathing and cardiac output in asphyxiated newborns at birth, to prevent early neonatal morbidity and mortality. The newborn care procedures described in our ancient texts demonstrate their insight in terms of resuscitation, preventing hypothermia, preventing aspiration and infections, and initiating early breastfeeding. In contemporary science, newborn care is referenced in point by point with the utilization of convention based management.

1. INTRODUCTION

Ayurveda, the earliest systematized medical system is considered as eternal, since it emanated from the mouth of god of creation, that is, *God Brahma*. Others opine that actually *Ayurveda* descended from celestial to terrestrial stage with its eight clinical branches. *Kaumarbhritya* or *Balachikitsa* is said to be the foremost among eight branches of *Ayurveda* as the god *Agni* amongst several gods.^[1] Other specialties treat the children those are reared by the *Kaumarbhritya*. The subject matter of this branch is available primarily in *Sharir Sthana* and *Uttar Tantra* of treatise comprising *Brihat Trayi*. This branch includes the management during the antenatal period and puerperium as well as pacification of diseases of the children.^[2] It also includes neonatology, among which care of newborn (*Navjata Shishu Paricharya*) is described in detail.

Navjata Shishu Paricharya includes care of the newborn baby having age up to 28 days. Care of the progeny may be divided broadly into following four phases – Phase I means care before and during pregnancy, Phase II includes Care at delivery, that is, immediate care

of the newborn, Phase III consists of care during the transitional period, that is, within first few hours after the birth, and Phase IV includes care during post transitional period, that is, care of the well stabilized baby.

Considering every birth as medical emergency immediate care of the newborn during and soon after the delivery is mandatory. This comes under the phase II which includes *Prana pratyagamana* (neonatal resuscitation), *Ulva parimarjana* (cleaning of the vernix caseosa), *Naalchedana* (cutting of umbilical cord), *Snana* (neonatal bath), *Mukh vishodhana* (cleaning of oral cavity), *Garbhodak vamana* (clearing of neonate's stomach), *Jata karma* (birth rites), and *Raksha karma* (protection of baby). This review presents a critical evaluation of the procedures included in *Navjata Shishu Paricharya*. A thorough study of the texts reveals the scientific relevance and utility of neonatal care described in *Ayurveda*.

1.1. Prana Pratyagamana (Neonatal Resuscitation)

Acharya Charaka explained that the following actions should be taken for the resuscitation of the fetus as soon as possible after birth, while taking steps to bring out the placenta: striking stones near the base of the baby's ears and sprinkling the baby's face with hot or cold water depending on the season. By taking these steps, the baby will regain consciousness that was lost during the delivery process due to the

Corresponding Author:

Manish Gehlot,
Junior Resident, Department of Kaumarbhritya and Balroga IMS-BHU,
Varanasi, Uttar Pradesh, India. Phone: +91-9784930295.
E-mail: man.gehlot96@gmail.com

tension of bearing down. If the infant doesn't start breathing even after following these measures, he should be fanned with a fan made out of bamboo straps until he does.^[3] *Bala taila* should be massaged onto the infant's body, while Astanga Hridaya suggests producing noise by striking two stones together. Sacred hymns should be chanted in right ear of the baby.

Relevance: *Acharya Charaka* has emphasized the importance of starting *Prana Pratyagamana* measures as soon as the baby is born and making quick efforts to remove the placenta. This demonstrates their comprehension of the importance of the first few minutes of a neonate's existence in preventing brain damage from resuscitation delays. When two stones are struck close to the mastoid or base of the ear, a loud sound is produced that stimulates the vestibule cochlear nerve. It is a sensory neuron whose afferent branch sends feeling to its nucleus, which are located close to the respiratory center on the floor of the fourth ventricle. When this region is aroused, respiration also starts. In addition, the act of striking stones irritates the vagus nerve's auricular branch, which causes the baby to cough. To start breathing, the motor neurons of the respiratory center in the brain are stimulated by the sensation of hot or cold water on the face. This causes the hyoid bone to rise and the epiglottis to open. Fresh air that contains 21% oxygen is produced by a blackened fan waving air. Resuscitation with room air is still advised even today in cases when oxygen is not available. Caressing the infant's body with a *bala taila* promotes strength development, temperature regulation, and tactile stimulation. Chanting sacred Mantras near the infant's ear can benefit both of them psychologically and aurally.

1.2. *Ulva Parimarjana* (Cleaning of the Vernix Caseosa)

Ulva is nothing but is the Vernix caseosa which covers the body of the newborn child and should be cleaned with *Saindhava* (rock salt) and *Sarpi* (butter oil). According to *Sushruta Sharira*, *Ulva* and *Mukha* should be cleaned with rock salt and *Sarpi* (butter oil), and *Pichu* of *Ghrita* should be kept over the *Murdha*, in clinical practice, over the head or area of anterior fontanel is taken.^[4]

Relevance: Enough tactile sensation is provided to resuscitate a baby in primary asphyxia by rubbing ghee and rock salt on the infant's body to remove vernix. In addition to being an insulator, ghee guards against hypothermia. When a newborn gasps for air, it can be avoided that any vernix residues in the mouth will aspirate into the respiratory canal. According to modern science, the baby should be dried and cleaned at birth with a clean and sterile cloth while on the mother's abdomen. The cleaning should be gentle and should only wipe out the blood and the meconium and not be vigorous enough to remove the vernix caseosa. The vernix protects skin of the infant and helps maintain temperature. This gets absorbed on its own after sometime.^[5]

1.3. *Naalchedana* (Cutting of Umbilical Cord)

Acharya Sushruta suggests *Naalchedana* after *Mukhavishodhana* and *Pichu dharana*, While *Acharya Charaka* advises it after *Garbhodak vamana*. The cutting of the umbilical cord following *ulva parimarjana* and resuscitation techniques has been described by *Acharya Vagbhata*. Whereas *Charaka* goes on to say that the cord's navel attachment should be noted eight *angulas* away from the root.^[6] This mark should be carefully obscured on both sides by hand. Then, the string should be cut at this mark using an *Ardhadhara*-style tool made of gold, silver, or steel. The ends of the thread should be loosely looped around the baby's neck and used to tie the distal end of the cord. If the umbilical cord is suppurating, apply oil that has been heated with the paste

of *haridra* (*Curcuma longa*), *suradaru* (*Cedrus deodara*), *priyangu* (*Callicarpa macrophylla*), *madhuka* (*Glycyrrhiza glabra*), and *lodhra* (*Symplocos racemosa*). Over the suppurated umbilicus, sprinkle powdered medication suggested for oil preparation. The length of cord that should be left is suggested by *Sushruta* and *Vagbhata* to be eight and four *angulas* (app. 3 or 6 inch), respectively. It should be tied with a thread before being cut, and then it should be loosely hung over the child's neck. *Vagbhata* also proposes that *Kushtha taila* anoint the cord.^[7]

Relevance: After all resuscitation procedures are finished and the newborn is stabilized, the umbilical cord is cut. Cutting the cord by thread is the recommended method to stop the bleeding that could cause hypovolemic shock. At present, pediatrician use rubber band or preferable cord clamp for the cord clamping. Rubber band helps in prevention of oozing of blood from the cord due to consistent pressure over the vessels till the cord fall caused by the elastic property. During ancient time, there was no invention of rubber or plastic material, but by hanging of umbilical cord, tied with thick cotton thread having specific type of knot which on stretching by movement of baby causes tightening of knot of cord. Therefore, it may prevent the bleeding from the umbilical cord on subsequent days of birth. In one study, when the umbilical cord is taped over the skin of abdomen along with an application of *Lodhradi* oil, has shown the above said result in addition to rare incidence of umbilical granuloma Upward hanging of the distal end of the cord usually rests in contact of the skin of abdomen above the umbilicus which helps in prevention of oozing from the umbilicus during and after the cord fall. It is, probably, due to kinking of the umbilical vein (angle between the umbilical vein running inside the hanging umbilical cord and subcutaneous in abdomen is approximately 160°). This technique is also found effective in prevention of umbilical cord infection by keeping the umbilical cord away from the urine and/or stool. *Kushtha* (*Saussurea lappa*) used for cord care has *jantughna* (anti-infective), *vedana sthapana* (analgesic), and *shothahara* (anti-inflammatory) properties. Umbilical cord clamping must be delayed for at least 60 s according to the WHO to allow transfer of additional amount of blood from placenta to the infant. This delayed cord clamping is associated with improved hematologic status, iron status, and clinical anemia at 2–6 months in term born infants.^[8] Early cord clamping is indicated in conditions such as Rh isoimmunization and severe fetal hypoxia.

1.4. *Snana* (Neonatal Bath)

Acharya Charaka states that a newborn should have his excretory tracts cleaned with water and given a bath once his breathing has stabilized and he is in a stable state. After a newborn's *Jata karma*, *Sushruta* advises bathing them. According to him, the newborn should be massaged with *bala taila* and then washed in a mixture of laticiferous tree decoction, aromatic medicine water (*eladi gana*), water boiled with gold or silver, or a warm decoction of leaves from the *Limonia acidissima* Linn. Plant, depending on the season, dosha, and available resources.^[9] *Astanga Hridaya* has expressed similar opinions as well.

Relevance: Bathing of baby maintains hygiene and prevents rashes such as erythema toxicum. Medications used to prepare the bathing water promote healing of umbilical stump. The routine dip baths should be avoided until the baby is in the hospital premises as this increases the risk of hypothermia. The sponging of the baby should be done once a day with clean water, as per the requirement. The dip bath may be undertaken once the cord has fallen and the baby is discharged from the hospital.^[10]

1.5. Mukhishodhana (Cleaning of Oral Cavity)

Acharya Charaka recommends that the neonatologist (Also skilled in resuscitative procedures), should wrap the finger, having properly cut nails, with sterile cotton swab. Thereafter, cleanse the mouth, palate, lips, throat (pharynx and larynx), and tongue of the newborn baby. First, clean the mouth and then cover the face, head, anterior fontanel, or palate (*Talu*) by tampon soaked with *Sneha (Sarpi)*.^[11] *Acharya Sushruta* has prescribed the use of ghee and rock salt for oral cleaning. Covering fontanel by ghee soaked cotton has been advocated by both *Sushruta* and *Vagbhata*.

Relevance: A newborn's mouth cavity should be cleaned to avoid the aspiration of amniotic fluid, blood, meconium, or vernix when the baby first breathes. In light of this, aspiration pneumonia (*Ulvaka*) danger is eliminated. Ankle protection and heat loss from the neonate's enormous surface area are prevented by placing a cotton piece soaked in ghee on the anterior fontanel.

1.6. Garbhodaka Vamana (Stomach Wash)

Fetus swallows *Garbhodaka* (amniotic fluid) inside the womb. After delivery that should be cleared by administration of *saindhav* and *sarpi* through the oral cavity. After proper external cleansing, the process of internal cleaning is carried out by initiating emesis of amniotic fluid with the butter oil mixed with rock salt (small amount). This process of emesis has been advised in *Charaka Samhita*, while in *Astanga Hridaya*, emesis is induced by giving *Vacha* along with butter oil (*Sarpi*) and rock salt.^[12]

Relevance: Nowadays, this process has been replaced by the aspiration of amniotic fluid followed by the proper stomach wash with normal saline at birth with the nasogastric tube (6 Fr). Nasogastric tube insertion during the stomach wash helps to judge patency the GI tract. If the stomach contents equal to or more than 30 ml suggest intestinal obstruction in neonates.^[13] Patency of esophagus should be ascertained at birth in presence of polyhydramnios, vertebral or anorectal anomalies, and excessive frothing. According to new protocol of neonatology, performing routine stomach wash to prevent gastritis due to meconium or amniotic fluid should not be done.^[14]

1.7. Jata Karma (Birth Rites)

The first sacrament (*Samskara*) performed after birth is called *jata karma*. It has to do with the infant's first feeding. It is carried out according to the Vedic instructions. The infant should first be given honey and ghee that have been saturated with Vedic chants. After that, the kid should get first breast milk from the right breast in accordance with a similar protocol. Keep a water-filled earthen jar near the child's head, impregnated with mantras. According to *Acharya Sushruta*, the infant's index finger should be used to lick *Swarna bhasma*, which is burnt gold powder combined with honey and ghee.^[15] *Astanga Hridaya* recommends giving them a *prashya* (confection) that has one *harenu* (pea) in quantity and is enhanced with holy chants, to endow wisdom, longevity, and good health upon a baby. Pastes of *aindri (Bacopa monnieri)*, *brahmi (Centella asiatica)*, *vacha (Acorus calamus)*, or *sankhpushpi (Convolvulus pluricaulis)* are used to make the confection, which is then combined with ghee and honey or gold. Other possible additions include *tapy* and *haritaki (Terminalia chebula)*, *Swarna bhasma*, and *amalki (Embllica officinalis)*. Religious writings describe the *prajapatya* method, which is the appropriate way to accomplish *jata karma*.

Relevance: A baby can transition from intrauterine to extrauterine life with the aid of the birth ritual known as *jata karma*. By virtue of high content of secretory IgA, Colostrum virtually works like a "first vaccine

shot" for the baby by blocking the entry of pathogenic bacteria through the gut. Colostrum is also credited with laxative effect facilitating the passage of meconium and preventing bilirubin build-up by promoting enterohepatic circulation.^[16] When a newborn is given *Swarnaprashana*, which includes honey, ghee, and *Swarna bhasma*, it fulfills the functions of oxytocin, actin, and immunization reflexes plus nutrition.

1.8. Raksha Karma (Protection of Baby)

Classic Ayurvedic texts outline precautions against infection in newborns. The *sutikagara* (mother's wardroom) should be surrounded by branches of the following plants: *khadira (Acacia catechu)*, *karkandhu (Zyzyphus nummularia)*, *pilu (Salvadora persica)*, and *parushaka (Grewia asiatica)*. Sprinkle broken rice, *atasi (Linum usitassimum)*, and mustard grains in *sutikagara*.^[17] Rice is offered to the sacred fire in a rite known as *tandula bali homa*, which is practiced twice a day until the naming ceremony, which takes place on the tenth day. A big pestle known as a *moosal* should be positioned obliquely at the entrance of *Sutikagara*. Twice a day, pieces of *atasi (Linum usitassimum)*, *lashuna (Allium sativum)*, *sarshapa (Brassica nigra)*, *kushta (Saussurea lappa)*, *hingu (Ferula narthrex)*, *vacha (Acorus calamus)*, and other medications known to ward off evil spirits' attacks should be tied in a packet and hung to the upper beam of the *sutikagara*.

Relevance: The anti-microbial properties of *rakshoghna* (herbal medicine) lower the risk of infection when placed in a neonatal's ward room and tied to the patient. Fumigation of *Sutikagara* by various *dhoopana dravyas* is mentioned to protect the baby from opportunistic infections and avoiding potential source of contamination. *Raksha karma* is prescribed for ten days means early neonatal period, the most vulnerable period for a newborn.

3. DISCUSSION

Every birth is a medical emergency because even any minor error may cause harm to the newborn like birth asphyxia, which is a leading cause of static development and neurologically handicapped baby, and sometimes, it may result in death of the baby. *Navjata Shishu Paricharya* covers the rapid assessment of the newborn baby in the labor room which is very essential within first few minutes of life that's called golden minutes of a neonate's life. The aim of examination of newborn is to ensure and assess that lungs have been expanded and air passages are not obstructed as well as to make an early diagnosis of life-threatening congenital malformations and birth injuries. The following guidelines should be adopted to find out important normal or abnormal findings in a newborn baby by conducting examination and observation while the healthy baby maintains "skin to skin" contact with the mother. During examination, pediatricians should confirm either baby has achieved early transition to the extra-uterine environment, check the vital signs for the stability (*Prakritibhutam*), detection of life threatening congenital anomalies, and injuries just after birth, determination of gender, weighing and gestational age assessment after vital sign stability and reassurance of parents.

During the Phase II, newborn baby is examined for two purposes – first, be ensure that baby is breathing normally and baby has been protected from the hypothermia (Initial steps for Resuscitation). Second, quick screening for the life-threatening congenital anomalies, birth injuries as well as simultaneously assess the pulmonary cardiovascular and CNS function.

4. CONCLUSION

The simple interventions regarding care of the newborn such as, assessment of wellbeing of the newborn, judicious use of resuscitation

steps by skilled staff, detection of congenital anomalies along with other danger signs, delayed cord clamping, thermal care, immediate and sustained skin to skin contact, early initiation of breastfeeding, and hand hygiene could dramatically reduce neonatal mortality and morbidity. After birth, baby must breathe immediately or the baby should be helped to establish breathing without delay because at this time, baby may present many life-threatening conditions and needs to be handled with care. *Navjata Shishu Paricharya* demonstrates that this practice remains the foundation and basis of neonatal care, even though it has become outmoded partly due to the development of modern scientific research and advancements.

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7. AUTHORS' CONTRIBUTIONS

All the authors contributed equally in design and execution of the article.

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9. ETHICAL APPROVALS

This study not required ethical clearance as it is review study.

10. CONFLICTS OF INTEREST

Nil.

11. DATA AVAILABILITY

This is an original manuscript and all data are available for only review purposes from principal investigators.

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