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Review Article

NAVJATA SHISHU PARICHARYA (NEONATAL CARE) IN AYURVEDA – A REVIEW

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ABSTRACT

Navajata Shishu Paricharya (Care of the newborn) is described by both ayurvedic and modern texts in detail. In ancient texts, acharyas gave prime importance to care of newborn (Navajata Shishu Paricharya) which starts from birth to full stability of newborn. Various procedures were advised in the management of newborn child by acharyas with a few differences in opinion regarding the sequences of those procedures. The modern Paediatrics also describes resuscitation and care of newborn in the discipline of Neonatology alongwith the diseases of the neonate. In ayurveda, Pranapartayagamana, Snana, Mukha vishodhna, Pichudharna, Garbhodaka vama, Nala chedana, Jatakarma, Raksha karma are the procedures involved in the resuscitation of the newborn.

Keywords: Pranapartayagamana, Snana, Mukha vishodhna, Nala chedana, Jatakarma, Raksha karma.

INTRODUCTION

Navajata Shishu Paricharya (Care of newborn) has found detailed mention in both ayurvedic and modern texts. In ancient Ayurvedic texts, acharyas have given prime importance to care of newborn (Navajata Shishu Paricharya) which starts from birth to viable stability of the newborn. In general, the care of a normally delivered newborn at birth includes prevention of asphyxia, hypothermia, early rooming-in and initiation of breast feeding. Various procedures were advised in the management of newborn child by acharyas with a few differences in sequences of these procedures. Similarly the various steps of resuscitation are adopted in modern science.

1. Acharya Charaka (Charaka Samhita Sharirasthana 8/42-47 p.947-50)¹ advocated the following steps to stabilise the newborn baby - Pranapartayagamana, Snana, Mukha vishodhna, Pichudharna, Garbhodaka vama, Nala chedana, Jatakarma, Raksha karma.
2. Acharya Sushruta (Sushruta Samhita Sharirasthana 10/14-17,26 p.76-78)² gave following steps - Ulva parimarjana, Mukha vishodana, Pichudharna, Nala chedana, Jatakarma, Suvarnaprashana, Abhyanga, Snana, Jatakarma, Rakshakarma.
3. Acharya Vagabhata (Astanga Sangraha Uttaratantra 1/1-21p.1-43 and Astanga Hridayum Uttaratantra1/1-

14,25,27p.875-80)⁴ gave following steps - Ulva parimarjana, Abhyanga, Prana partyagamana, Nalachedana, Snana, Mukha vishodana, Pichu dharana, Suvarnaprashana, Garbhodaka vama, Jatakarma, Rakshakarma

The various steps in Ayurvedic texts by different acharyas which are to be followed for newborn care are described below –

1. ULVA - PARIMARJANA (Cleaning of Vernix caseosa)

Acharya Sushruta has advised to first and foremost clear/remove the *ulva* (vernix caseosa) from the body of newborn baby (Sushruta Samhita Sharirasthana 10/14 p.76).² Acharya Vagbhata has advised application a mixture of saindhava & ghrita for ulva parimarjana (Astanga Sangraha Uttaratantra 1/2 p.1)³ and further to massage the baby with bala oil which provide relief from stress/pressures undertaken by the baby during the birth process (Astanga Hridayum Uttaratantra 1/1 p.875).⁴ The drug Bala (*Sida cordifolia*), mentioned here, according to Ayurveda, has the following properties – *balakaraka* (provide strength), *grahi* & cures (nashnaum) *vata*, *rakatapitta* (hemorrhagic/bleeding disorders), *raktavikara* and *vrana* (Charaka Samhita Sutrasthana 25/40 p.468¹ and Bhavprakasha Nighantu Guduchiyadivarga p.366).⁵ Research also corroborates these facts as *Sida cordifolia* (*bala*) showed following properties - antioxidant activity,⁶ anti-inflammatory effect,⁷ antimicrobial

activity^{8,9} etc. Ayurvedic scriptures indicate Bala oil for *pana* (per os) and *nasya* (through nasal route) in treatment of various diseases as *kasa* (cough), *shvasa* (dyspnoea), *jvara* (fever), *shosa* (cachexia), *apasmara* (epilepsy) and *vataj roga* (Astanga Hridayum Chikitsashthana 21/73-81 p.814).⁴

Vernix caseosa serves to conserve heat and protects the delicate newborn skin from environmental stress. But at birth, the newborn's skin is covered with vernix caseosa as well as blood, meconium and cellular fragments. There are many opinions for removing or not removing vernix caseosa of the newborn at birth. Some have advised that it is better to clean this from the head and neck region, shortly after birth¹⁰ and some advised not to remove vernix from the body as it can result in trauma to skin and increase chance of infections. After birth, massage with oil is popular in Indian culture and may prove beneficial as it provides insulation against heat and insensible water loss. Some oil may get absorbed through the thin skin of the baby to provide some nutrition. Touch (*saparsha*) is believed to improve neuromotor development of the baby by sending stimulatory signals to the brain. In all, *bala* oil massage therapy helps in promotion of strength, supports healthy neurological development, maintenance of health, and provides warmth to newborn besides stimulating the nervous system into action soon after birth.

2. MUKHA VISHODHANA (Oropharyngeal cleaning)

Acharya Charaka described mukh vishodhana very scientifically, which is also synonymous with the modern day Neonatology practice, where it is advocated that the oral cavity (palate, lips, pharynx, tongue) of the newborn is first of all to be cleaned with nail trimmed finger wrapped with cotton (Charaka Samhita Sharirasthana 8/43 p.948)¹ and similar description is given by Vagbhata (Astanga Sangraha Uttarantra 1/9 p.2³ and Astanga Hridayum Uttarantra 1/7 p.876).⁴ In this context, acharya Sushruta has promoted the use of ghrita (clarified butter) and saindhava (rock salt) to clear the secretions of the oral cavity (Sushruta Samhita Sharirasthana 10/14 p.76).² The method employed for cleaning of airways will depend on the presence or absence of meconium. Generally, oral secretions are cleared by use of clean cloth wrapped around index finger or by use of suction catheter or with a bulb syringe. The proper order for cleaning an infant's oral cavity is first cleaning the mouth, then the oropharynx and hypopharynx and finally the nasal cavity, using a suction catheter with gentle intermittent suction. This technique involves first cleaning the oro-pharyngeal cavity and thereafter the nasal cavity to avoid aspiration of secretions.

3. PICHUDHARNA (Tampon application)

Acharya Sushruta recommend that put/cover the *murdha* of the newborn (anterior fontanelle or forehead) with tampon soaked in ghrita (Sushruta Samhita Sharirasthana 10/14 p.76).² Acharya Vagbhata has also counselled the use of *sneha-pichhu* (a gauze smeared with oil) on *talupradesha* (anterior fontanelle or forehead) (Astanga Sangraha Uttarantra 1/9 p.2³ and Astanga Hridayum Uttarantra 1/8 p.875).⁴ This might have been employed to indicate importance which *murdha/brhama-randra* (anterior fontanelle) holds with regard to the soft intracranial structures of the newborn, which are yet not protected due to unfused cranial sutures. Thus, as a protective mechanism, the acharyas have advised the covering of anterior

fontanelle with a *sneha-pichhu*. This however is not practiced in modern Neonatology.

4. NALA CHEDANA (Cutting & care of Umbilical Cord)

Acharya Charaka described nala-chedana to be undertaken after Pranapartyagaman (proper revival). Umbilical cord should be cut at eight angula distance from baby's umbilicus by clean and sharp instruments made from metals like swarna (gold), rajat (silver), ayasa (iron) and followed by tying with a clean thread at its cut end. The free end of the clamped cord should be hung onto the neck of the baby. During initial stage of nabhipaka (omphalitis), oil medicated by drugs as lodhra (*Symplocos racemosa*), mulethi (*Glycyrrhiza glabra*), priyangu (*Callicarpa macrophylla*), devdaru (*Cedrus deodara*) & haridra (*Curcuma longa*) is curative in case omphalitis develops (Charaka Samhita Sharirasthana 8/44 p.948).¹ Acharya Charaka also described various complications owing to faulty technique of nala-chedana, for example erroneous tying of umbilical cord, and their respective treatment (Charaka Samhita Sharirasthana 8/45 p.949).¹ Sushruta has also mentioned nala-chedana in navajata shishu-paricharya (Sushruta Samhita Sharirasthana 10/14 p.76).² Acharya Vagbhata mentions similar technique of nala-chedana but regarding the procedure he is of the view that the umbilical cord must be cut at a distance of four *angulas* from umbilicus and to prevent it from *paka* (inflammation) *kushtha* (*Saussurea lappa*) medicated oil must be used (Astanga Sangraha Uttarantra 1/7 p.20³ and Astanga Hridayum Uttarantra 1/5-6 p.875-76).⁴

Nowadays, umbilical cord is clamped without delay after delivery. The first ligature is tied about 2-3 cm from the abdomen of the baby and second ligature is tied 5 cm from the abdomen. Then the cord is cut by use of clean blade/scissor in between these two ligatures and the cut end is inspected for presence of normal anatomical contents of umbilical cord i.e. two arteries and one vein. A clean autoclaved thread, disposable cord clamp or a sterile rubber band is used for cord clamping. Cord is left as such with an aim to keep it dry and avoiding repeated handling to prevent sepsis. Inspection of the cord is advised at every 15-30 minutes for initial few hours after birth for early detection of any oozing from the cord which may occur due to loosening of ligatures and shrinkage of cord. Generally, the umbilical stump dries and falls off anytime between 5-10 days after birth.

5. PRANPARTYAGAMAN (Resuscitation Process)

In ancient texts, broadly the process of Pranapartyagaman was discussed in two parts. First, general measures to initiate respiration are discussed and thereafter, specific measures are indicated which may be employed once the initial attempts fail to revive the newborn.

1. According to acharya Charaka, the following general measures should be undertaken immediately after the birth of newborn, such as - striking of two stones just near the ears of baby and sprinkling warm or cold water on baby's face. These two steps may prove helpful for the baby to initiate the important act of breathing helpful in respiration and heart functioning, which have been a bit hampered during act of birth through birth canal. If baby does not stabilize/show any activity even after these steps

then measures to increase air (oxygen) availability to the baby as in by waving a *krishankapalika shoop*a (a blackened surface broken earthen pot) near it until the baby is fully revived/resuscitated (Charaka Samhita Sharirasthana 8/42 p.947).¹

2. Acharya Vagbhata also advocated the striking of two stones near the baby's ears, and chanting certain *mantras* (mantra is the part of *daiva-vyapashraya chikitsa* – a form of treatment advocated in Ayurveda by invoking the Gods through chanting of healing mantras) near its right ear for stabilizing the newborn (Astanga Sangraha Uttarantra 1/5-6 p.2³ and Astanga Hridayum Uttarantra 1/2-4 p.875).⁴
3. Acharya Vagbhata also described general and specific measures for resuscitation of a newborn until its proper stabilization. Acharya Vagbhata first gave the sign & symptoms of an asphyxiated newborn as –
 - a) Child suffering from deep unconsciousness (*prabal moha*) and fever (*javara*)
 - b) Unable/weak cry according to severity of pain
 - c) Unsteady state of all the tissues of the body (*anavasthita shesha deha dhatus*)
 - d) Attainment of youth is doubtful/suspicious about forthcoming youth (*asambhava yovanath awastha*)
 - e) Touch of hands, cloth, bed etc. gives feeling as being cut by saw
 - f) Abnormal and excessive involuntary movements
 - g) Newborn repeatedly shows distress as in apparent death

For proper revival (resuscitation) of newborn, first the child should be showered (*parisheka*) with bala oil along with striking of two stones near the roots/base of the ears of the newborn. If these initial steps do not regain the stability of the child, then ventilate the baby by *krishankapalika shupa* and chanting of mantras in the right ear of newborn should be adopted (Astanga Sangraha Uttarantra 1/3-6 p.1-2).³

From the above measures, it is clear that acharyas were aware of birth asphyxia and other related complications of the birth process at that point in time for which they have advocated means to guard against. It seems that sensory, tactile and auditory stimulation are produced by measures as - striking of two stones, sprinkling water over face and *krishankapalika shupa* which may by reflex stimulate cardiorespiratory systems and thus improving the respiratory & heart rate respectively. Lately, many fold improvement has occurred in the field of neonatal resuscitation and advanced instruments like bag and mask, radiant warmer, pulse oximeter, incubators, ventilators etc. are available in the field of neonatal resuscitation. Hence while handling a newborn, the routine processes of drying and suction produce enough stimulation to initiate effective respiration in most newborns, and if these attempts are insufficient then the baby is to be stimulated by flicking its nose or rubbing its back. If such efforts still prove insufficient then, step by step resuscitation protocols are adopted for stabilization of newborn which includes - bag and mask ventilation, chest compression, endotracheal intubation, medication etc. which are routinely practiced in modern neonatology.

6. GARBHODAKA VAMANA (Stomach wash)

Acharya Charaka advised use of *saindhava* and *ghrita* for inducing *vamana* (emesis) to wash out the gastric contents right after carrying out the *pichhudharana* (Charaka Samhita Sharirasthana 8/43 p.948¹ and Astanga Sangraha Uttarantra 1/11 p.3).³ For enabling this process, Acharya Vagbhata has even advised use of specific drug i.e. *vacha* (*Acorus calamus*) (Astanga Hridayum Uttarantra 1/10 p.877).⁴ According to Acharya Bhavaprakasha, *Saindhava Lavana* has following properties - *swadu, dipanum, pachanum, sheet, sukshma, netrya, tridoshghara* (Bhavaprakasha Nighantu Haritakyadivarga p.154).⁵ *Vacha* has following properties – *katu* and *tikta in rasa, ushna virya, vamankarka, dipanum, malamutra shodhaka*, and cures *vibanda* (constipation), *adhymana* (Bhavaprakasha Nighantu Haritakyadivarga p.43).⁵ Thus, the above stated medications are apt for clearing the stomach of any mucus or secretions.

In modern era, emesis is not a favoured method in neonatology for the fear of aspiration and proves dangerous in cases of preterm, floppy or unstable babies. Hence, as a routine stomach wash is not advised in normal newborns but is advised in some special conditions like in babies born through a Caesarean section, severely asphyxiated babies, meconium stained amniotic fluid, polyhydramnios, infants of diabetic mothers, hypo plastic small for dates babies etc (Meharban Singh).¹¹ For this, the prescribed method nowadays is stomach wash with normal saline using an appropriate length nasogastric tube.

7. SNANA (Bathing of baby)

Acharya Charaka recommended that after proper stabilisation of newborn (*pratayagata prana prakrirti bhuta*), *snana* of newborn is to be undertaken (Charaka Samhita Sharirasthana 8/42 p.947).¹ Acharya Vagbhata describes *snana*, the first bathing of the newborn in detail and advised *snana* to be done only after proper evaluation of the *doshas, kala* (seasons/periods) and strength/capability of baby. Vagbhata also mentions different *dravyas* for *snana* as – lukewarm *ksheerivriksha kwatha, sarvagandha dravyas'* medicated water, water in which heated *rajat* (silver) or *swarna* (gold) have been quenched or in *kapith patra kwatha* (Astanga Sangraha Uttarantra 1/8 p.2³ and Astanga Hridayum Uttarantra 1/6 p.876).⁴ The above used formulations are described as:

- I. *Ksheerivriksha* consists of *Naygarodha* (*Ficus bengalensis*), *Udumber* (*Ficus glomerata*), *Ashwatha* (*Ficus religiosa*), *Parisha* (*Thespesia populnea*) and *Pakara* (*Ficus infectoria*). They have following properties – *kashya rasa, sheet virya, ruksha, varnya* properties and cures *vrana* (wound), *meda, visrpa* (erysipelas), *shotha* (edema/inflammation), *pitta-kapha-raktaj vikaras*. Some acharyas replaced *parisha* with *vetasa* (*Salix caprea*) and *shirisha* (*Albizia lebeck*). (Bhavaprakash Vatadivarga p.519-20).⁴ These herbal drugs also showed anti-infective properties as –
 - 1) *Ficus bengalensis* showed antimicrobial activity,^{12,13} anti-inflammatory and analgesic activity.¹⁴
 - 2) *Ficus religiosa* showed antioxidant, wound healing and anti-inflammatory activity¹⁵ and antimicrobial activity.¹⁶

- 3) *Ficus glomerata* reported anti-inflammatory activity¹⁷ and antimicrobial activity.¹⁶
 - 4) *Thespesia populnea* showed antimicrobial activity,¹⁸ mast cell stabilization and antianaphylactic activity,¹⁹ and anti-inflammatory activity.²⁰
 - 5) *Albizia lebeck* showed analgesic and anti-inflammatory activities,²¹ anti-arthritis and antioxidant property,²² analgesic and antipyretic activity.²³
- II. Sarvagandha group consists of *Chaturjata* [which consists of Dalchini (*Cinnamomum zeylanicum*), Tejapatra (*Cinnamomum tamala*), Ela (*Elettaria cardamomum*), Nagkesara (*Mesua ferrea*)], Kapura (*Cinnamomum camphora*), Kankola (*Piper cubeba*), Aguru (*Aquilaria agallocha*), Shilarasa (*Liquidamber orientalis*), Lavanga (*Syzygium cumini*) (Bhaisajyaratnawali 4/43 p.54).²⁴ These drugs are described with following properties as:
1. Dalchini (*Cinnamomum zeylanicum*): Tikta rasa, vata-pittanashaka, *balya* (provide strength), cures thirst (Bhavprakash Karpuradivarga p.226).⁵ It also showed anti-inflammatory activities,²⁵ antimicrobial activity.²⁶
 2. Tejapatra (*Cinnamomum tamala*): Madhura rasa, pichhila, laghu and cures kapha-vataj roga, arsha, aruchi, pinsa (Bhavprakash Karpuradivarga p.228).⁵ It also showed antimicrobial activity,²⁷ antioxidants activity,²⁸ and anti-inflammatory, analgesic and antipyretic activity.²⁹
 3. Ela (*Elettaria cardamomum*): Katu in rasa, sheetvirya, laghu and cures kapha, shvsa, kasa, vataj roga (Bhavprakash Karpuradivarga p.222).⁵ This herb showed antimicrobial activity.³⁰
 4. Nagkeshara (*Mesua ferrea*): Kasya rasa, usnavirya, ruksha, lagu, pachanum, and cures jvara, kandu, kustha, vama, visrpa, kapha-pittaj roga (Bhavprakash Karpuradivarga p.231).⁵ It also showed anti-nociceptive and anti-inflammatory activity,³¹ antioxidant activity,³² and analgesic activity.³³
 5. Kapura (*Cinnamomum camphora*): Kaphanashaka, and cures kustha, kandu, vama (Bhavprakash Karpuradivarga p.175).⁵
 6. Kankola (*Piper cubeba*): Laghu, tikshna, usnavirya, tikta in rasa and cures hridroga, kapha-vataj roga, daurgandata (Bhavprakash Karpuradivarga p.259).⁵ During trail showed antimicrobial efficacy,³⁴ and antioxidant activity.³⁵
 7. Aguru (*Aquilaria agallocha*): Usna virya, katu-tikta in rasa, tikshna, laghu, beneficial for skin and cures eye diseases, vata-kapha roga (Bhavprakash Karpuradivarga p.194).⁵ It also showed analgesic and anti-inflammatory activity,^{36,37} and antimicrobial activity.³⁸
 8. Silarasa: Katu rasa, madhura, snigdha, usana virya, kantikarka, and cures sweda, kustha, daha, jvara (Bhavprakash Karpuradivarga p.215).⁵
 9. Lavanga (*Syzygium cumini*): katu-tikta in rasa, laghu, sheet virya, dipanum, pachaka, ruchikarka and cures kapha-pitta-rakta vikara, vaman, shula, kasa, shavsa, hikka (Bhavprakash Karpuradivarga p.219).⁵ It also showed antimicrobial activity,^{39,40} anti-allergic activity,⁴¹ anti-inflammatory activity.⁴²
- III. Shudha Swaran: Shudha Swaran (gold metal) have following properties as snigdha, viryavardhaka, medha-

smriti-budhi-varadhaka, agnivaradhaka, ruchivaradhaka and cures yahshma, unmada, sarvadoshaghana (Rasa Ratnasamuchaya 5/10 p.53).⁴³ Shudha Rajat have following properties as kashya and amla in rasa, sheetal, lekshana, snigdha, dipana, balakaraka, ayustharykara, medhya and cures vata-kaphavikaras & sarvaroga-apharum (Rasa Ratnasamuchaya 5/27-28 p.55).⁴³

From the above description, it is clear that the various formulations and drugs used for the first bathing of newborn have experimentally showed various properties as anti-nociceptive and anti-inflammatory activity, antioxidant activity, and analgesic activity which surely are of benefit to a newborn baby. Nowadays, immediate bathing at birth is not practiced fearing the grave risk of cross infection and hypothermia. Generally, bathing of a newborn is postponed till its proper stabilisation in terms of temperature, respiration etc. Moreover as nowadays most deliveries are institutional, in most hospitals no bath schedule is adopted during hospital stay of the baby to reduce incidences of nosocomial infections. In contrast, nowadays, skin of the newborn is gently cleaned removing any secretions, mucus, blood and/or meconium. Further, it is advocated that the baby should be bathed or sponged using unmedicated soap and clean lukewarm water (Meharban Singh).¹¹ Soap is better to be restricted to body parts like groins, axillae and napkin areas. After this the baby is adequately clothed to avoid hypothermia.

8. JATAKARMA (Feeding schedule of neonate)

Regarding the feeding schedule of the newborn, acharya Charaka has said that on the first day feed the neonate with *madhu* (honey) and *ghrita* which has been sanctified with mantras and thereafter the mother should offer her right breast for feeding to the baby after placing by the side of baby's head, an earthen pot filled with water rendered sacred by chanting of mantras (Charaka Samhita Sharirasthana 8/46 p.950).¹ In perspective, Charaka has advised breast feeding immediately after birth right from the first day of life which in principle is advocated nowadays as well. Acharya Sushruta advised a concoction of *madhu*, *ghrita* and *ananta* consecrated with mantras to be administered three times a day on the first day of childbirth. On second and third day *Lakshmana* medicated *ghrita*, while on fourth day *madhu* and *ghrita* is to be offered to the newborn in amount which is - *shavapanitalasamitta* (or amount which fills the neonate palm). Henceforth, the baby can be exclusively breast-fed (Sushruta Samhita Sharirasthana 10/17 p.76).² Acharya Vagbhata follows Sushruta's feeding regimen with a slight variation where on the fourth day, he has advocated offering *ghrita* (*sarpi*) (Astanga Sangreha Uttaratantra 1/15 p.3)³ and *navnita* (butter) to the newborn (Astanga Hridayum Uttaratantra 1/11-14 p.877-78),⁴ and thereafter initiating breast feeding. The beneficial properties of the above mentioned drugs as propounded in Ayurveda and certain experimental studies are:

1. Ghrita: According to Acharya Charaka, ghrita cures pittaj & vataj rogas, rasa-sukra-ojas hitkara, improves voice, *varanprashadana* (Charaka Samhita Sutrasthana 13/14 p.258).¹ according to acharya Sushruta, ghrita enhances *smriti*, *medha*, *kanti*, *swara*, *sukumarata*, *ojas*, *bala*,

vyasthapaka, netraya, rakshahagana, and cures *unmada, apasmara, jvara, vat-pittaj rogas* etc (Sushruta Samhita Sutrasthana 45/96 p.177)².

2. Madhu: According to Acharya Charaka, madhu is kashaya and madhura in taste, shitaviryaya, sandhankara (er-union activity), *chedana* (herbs that help scrape away *ama*; also an expectorant), cures *raktapitta* (hemorrhagic/bleeding disorders) and *kaphaj roga* (Charaka Samhita Sutrasthana 27/245 p.554).¹ Honey has been shown in recent experimental studies to possess antimicrobial,⁴⁴ antiviral,⁴⁵ antioxidant,⁴⁶ and consists of carbohydrates (mainly glucose and fructose) which provides energy⁴⁷ etc.
3. Breast milk: Acharya Charaka describe breast milk as *jivanam, brihanam* (anabolic), *satmya* (favourable/wholesome), *snehanam* (unctuous) (Charaka Samhita Sutrasthana 27/224 p.551).¹ Acharya Sushruta said breast milk is madhura rasa (sweet), *jivanam, pathyam, dipanam* (digestive) etc (Sushruta Samhita Sutrasthana 45/57 p.173).²

The above account illustrates the importance attached to breast feeding by Ayurvedic acharyas. As a diet for a newborn, they have praised it for its exceptional properties as *satmyam, jivanam brihanam, pathyam* etc. so much so that acharya Charaka has advised breast feeding right after birth. Nowadays it is a known fact that a newborn should be put to mother's breast after birth without offering any prelacteal feeds (e.g. glucose water, cow milk, honey etc).

Also, these days exclusive breast feeding without the addition of infant formula or any solid food is advised for the initial six month right from first day of life. Artificial feeding is reported to be associated with likely morbidity from pneumonia, diarrhoea, ear infections, necrotizing enterocolitis etc. in infants. Colostrum, the thick yellowish milk produced during first few days of lactation is rich in vitamins, proteins and protective antibodies and hence must be administered to the newborn promptly. Otherwise also the breast milk contains an ideal balance of nutrients that promote growth and development of a baby and also promotes its ideal mental development. It has a number of nutritional benefits as high concentrations of lactose, presence of taurine and cysteine amino acids along with other proteins; amongst fats it is rich in polyunsaturated fatty acids and omega-2,6 fatty acids. It contains disease defending factors like immunoglobulin, macrophage, lymphocytes, lysozymes, epidermal growth factors etc. which are potent against allergies and various opportunistic infections (O.P.Ghai p.122-23).⁴⁸

9. RAKSHAKARMA (Protective measures)

In Ayurveda, Rakshakarma has been described as under -

1. Under Rakshakarma, Acharya Charaka gives detailed description related to protection of newborn (rakshakaram) related to antisepsis of beddings, clothing, and aseptic measures to prevent infections from surroundings. All around the labour room (*sutikagara*), the twigs of *adani, khadira, karakndu, pilu, parushaka* should be hung, and *sarshapa, atasi, tandula, kan-kanika* should be scattered on its floor. A packet containing *vacha, kustha, kshomka, hingu, sarspa, atasi, lasuna,*

guggulu etc. *rakshoghana dravyas* should be hung on the door and similar *dravyas* should be tied around the neck of mother and the child. Well wishing care taker women should be remain vigilant and attentive in the *sutikagara* for the initial 10-12 days (Charaka Samhita Sharirasthana 8/47 p.950).¹

2. Acharya Sushruta directed the newborn to be wrapped in *kshauma* (linen) cloth and made to sleep on a bed covered with soft linen. Twigs of *pilu-badar-nimba-parushaka* are to be used to gently fan the baby. A tampon impregnated with oil (*tailapichu*) should be applied over the baby's forehead daily. Fumigation with *rakshoghana dravyas* should be done in the *sutikagara*. (Sushruta Samhita Sharirasthana 10/26 p.78).²
3. Acharya Vagbhata described similar rakshakarama as described by Charaka (Astanga Sangraha Uttarantra 1/17-21 p.2-3).³ in addition, Vagbhata has also counselled use of herbs as *brahmi, indryana, jivaka* and *rishbhaka* to be tied around hands or neck of the newborn. Vagbhata also mentions use of *balvacha* for it promotes *medha, smriti*, health and longevity of the baby (Astanga Hridayum Uttarantra 1/25-27 p.880).⁴

From the above description, it is evident that with respect to *rakshakarma*, Ayurvedic acharyas have advocated measures which aim to protect the newborn baby from various infections as in use of clean clothes, beddings etc. The fumigation of the *sutikagara* (sanatorium/labour room) by various drugs is mentioned to protect the baby from various opportunistic infections/diseases. The various drugs mentioned in *dhupana karma* have antiseptic and antimicrobial properties which have been proved so experimentally in various studies in recent times. Present neonatal care includes special aseptic measures to be adopted aiming to prevent any infection of the newborn. Right from the initiation of birth process, measures for sepsis and anti-sepsis such as clean hands, clean surface, use of sterile surgical instruments (blade/scissor), clean handling of the cord, use of surgical mask, gloves etc. are to be religiously followed until handling and resuscitation of the newborn baby. Appropriate hygiene is advised throughout the newborn care to decrease infection episodes during infancy.

CONCLUSION

Various propounders of Ayurveda have described the care of newborn in their own measure yet its essence is the same and moreover in its intent heralds the modern day Neonatology. Although, since then a rapid progression in Neonatology owing to technological advances in biological sciences have taken place yet the Ayurvedic acharyas have to be credited for keeping in place a very rational newborn care regimen. The in detail *navajata shishu paricharya* is surely the precursor of recent neonatology both having the common aim of protecting the newborn and adapting it to the worldly environment.

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