

Neonatal Resuscitation : An Ayurvedic Approach

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Every birth must be considered as a medical emergency. Perinatal hypoxia is one of the leading cause of perinatal mortality in developing countries. Birth asphyxia is an important cause of static development and neurological handicaps both in term & preterm Infants.

In utero, the placenta serves to transfer nutrition and oxygen from the mother and eliminates fetal waste products. After separation from mother the baby must breathe immediately to safeguard against anoxic damage to brain and other vital organs. In the labor room the newly born baby should be helped to establish independent breathing without delay because within two minutes of tying the cord the arterial oxygen tension falls to 1-2 mm Hg. The way in which an asphyxiated baby is managed at birth determines the immediate morbidity and quality of life among survivors.

In order to provide optimal care to mothers during delivery and ensure intact survival of new born babies, it is desirable that the delivery complex should be designated as perinatal intensive care unit (PICU) and provided with necessary physical infrastructure, equipment, staff and facilities. The health professionals working in this area should have adequate knowledge and skills to resuscitate a newborn baby and should be able to work smoothly as a team.

Conditions demanding resuscitation alert. :-

Antepartum Factors :-

- 1] Placental insufficiency :- toxemia, hypertension, diabetes mellitus, postmaturity.
- 2] Malpresentation or abnormal lie.
- 3] Multifetal Gestation.
- 4] Poor fetal growth.
- 5] Rhesus isoimmunization

- 6] Bad obstetrical history.
- 7] Bleeding in the second or third trimester.
- 8] maternal systemic disease.
- 9] Poly or oligohydramnios.
- 10] Drug therapy :- reserpine lithium carbonate, magnesium, sulfate, adrenergic, blocking agents, maternal drug abuse, etc.

Intrapartum factors:-

- 1] Evidences of fetal distress.
- 2] Premature labor.
- 3] Antepartum hemorrhage placenta previa, abruption placentae.
- 4] Cord prolapsed
- 5] Tight nuchal cord.
- 6] Meconium stained liquor.
- 7] premature rupture of membranes (>12 hrs.)
- 8] Prolong labor (>24 hrs.)
- 9] Prolong second stage of labor (>2 hrs.)
- 10] Use of general anesthesia and narcotics.

Resuscitation of newborn had been described elaborately in Ayurvedic literature. The manouver is very helpful even today for neonatal survival thus can contribute in reducing the sequelae caused by birth asphyxia.

The references reveal that ancient Ayurvedic scholars were well versed with process of resuscitation Ayurvedic texts Described the method to revive both normal as well as asphyxiated baby after birth.

Charaka had explained the process as under

1] Resuscitation of normal babies :
Charaka explained following procedure to be follow to revive normal baby after delivery.

अश्मनोः संघट्टनं कर्णयोर्मुले, शीतोदकेनोष्णोदकेन वा
मुखपरिषके :

तथा स क्लेशविहतान् प्राणान् प्रत्यागमनम्॥ (च.शा. ८/४२)

The order of development and maturity of sense organs follow the same pattern as that of the creation of the world Hense sense of hearing is the first to be developed followed by the sense of the touch , just as vayu forms after Akasha

Though the newborn is said to have developed the ability of perceiving all senses at birth. The sense of hearing & touch have acquired a greater degree of maturity.

- 1) Every sensory fibres while ascending up wards towards the cortex, gives a relay fibres to the centre of respiration & as such the respiratory centre in a new born can be stimulated indirectly by stimulating these sense organs.

The principle of moro's reflex lies ineliciating the responsiveness of the sense of hearing by stimulating the labrynth

This is described in Ayurveda by advising to make sounds infront of the ears of a newborn with the help of two stones.

- 2) The other way of stimulating Respiration act and cry is to sprinkle alternatively cold & hot water over the face and body of the child orby pinching or flickring the skin sepecially of the soles.

The sensory fibres of touch, pain & temperature from skin may thus be used not only to stimulate the respiratory centres but also for a general analeptic response usually with above said measures baby starts crying and regains the act of respiration.

Sushruta samhita also explained the process with further measures such as –

- i) Cleaning of vermix caseosa
- ii) Cleaning of oral cavity with the help of mixing rock slat and ghrita.
- iii) To stimulate respiration by showering the cold water over the face.

Also other Accharya's such as Astanga sangraha explained as follows:

- i) Clearing of Ulba with rock slat and ghrita.
- ii) Anointing of body by bala taila. to remove the exertion of baby)
- iii) Striking of stones near the ear.

Astanga hridya also explained the same process for reviving the baby.

मुखनेत्रे शरीरंच पाणि पादंतथैव च सरकतं दृश्यते
यस्य
स वैस्वास्यौ भविष्यति ॥निश्चित मृत्यूः शरीरेश्याव
वर्णेन : (भेलसंहिता)

Accharya Bhela described pink face, eyes, body & limbs as sign of good prognosis and a child, showing cyanosed appearance is said to perish.

Thus APGAR Score of a child is calculated where the appearance, pulse, grimace Activity & Respiration of a child are noted. Each of them getting. 2 marks when normal & active. A child with jerky respiration & movements lika a cut snake is definite to die. A child with less than four marks at one minute & less than 6 marks at 5 minutes shall have a poor prognosis.

Charaka samhita has described that if child does not respond to normal resuscitation process and having features of birth asphyxia then the following process should be done :

“कृष्णकपालिकाशूर्पेण चैनमभिनिष्णुणी युर्यघचेष्टः स्याद्
यावत् प्राणानां प्रत्यागमनम् ॥” (च.शा.८/४२)

The process of vigorous fanning with winnowing basket made of krishnakaplika or with black broken earthen pot, till the child is fully revived. According to modern science the evaluation of the Infant at birth Apgar scoring system is conventionally used for assessing the condition of new born baby at 60 seconds after birth (table below shows) The respiratory effort and heart beats appear as most critical components of Apgar scoring system because muscle tone, response to reflex stimulus and colour are dependent upon the cardio-respiratory status of the baby. Apgar scoring system ignores the time of cry after birth which is important to identify and differentiate between primary & terminal apnea. The peripheral cyanosis is awarded a score of one although majority of healthy normally breathing babies are never totally pink at 1 – minute. Tone and response to reflex stimulus are dependent upon gestational maturity, moreover, centrally blue (asphyxia Livida) and totally pale asphyxia pallida) babies are given identical score, although latter are more gravely sick due to effect of combined cardio respiratory failure. Above all there is sufficient

recent evidence to suggest that there is poor correlation between Apgar Score at birth, cord blood-PH and future mental prognosis of asphyxiated babies.

In view of the inherent limitation of Apgar scoring system, it is no longer used to make decisions for neonatal resuscitation. It is suggested that action oriented assessment as outlined in table no. 02 should preferably be used which offers immediate therapeutic guide – Lines of managing an asphyxiated baby at birth

Table No. 01
Apgar Scoring systems

Criteria	Score		
	0	1	2
1) Respiration	Nil	Slow,Gasping	Crying
2) Heart Rate/Min	Nil	Up to 100	More than 100x
3) Muscle tone	flaccid	In between	Flexed
4) Reflex response	Nil	Grimace	Cry
5) Colour	Pale or blue	Peripheral cyanosis	Pink

Table No. 2

Modified action – oriented assessment of the baby at birth.

1) Fetal distress	Yes/No	Duration
2) Pethidine/Morphine	Yes/No	Hours before birth
3) First Cry	Minutes after birth	
4) Respiration	Absent /slow-irregular /crying	
5) Heart Rate	Absent /Up to 100/ >100/ min	
6) Colour	Pale/Blue/Pink	

Infants born following acute blood loss during or before delivery are often limp, pale and in shock. They must be differentiated from severely asphyxiated babies with circulatory collapse because of life saving therapeutic implications. The presence of ante partum hemorrhage and evidence of blood loss from placenta or umbilical cord should alert to the possibility of fetal hemorrhage. Initial cord blood hematocrit may be normal but repeat venous hematocrit after 4 to 8 hrs. may show significant fall

due to hemodilution. Resuscitation in baby with Ulvaka. (Aa.S.U. 2/91) As per vegabhata due to incomplete emesis of garbhodaka and sleshma in kantha pradesha rasa gets vitiated which obstructs the maragas i.e. pranavaha srotasas. The Features of disease are as follows :

- i) Child with tight fistled.
- ii) Hridya disease
- iii) Akshepaka – Convulsion due to hypoxia.
- iv) Shwasa – Dyspnoea – due to obstruction.
- v) Kasa – Due to Kapha in throat
- vi) Chhardi (G.I, Tract irritation)
- vii) Jwara (may be infection)

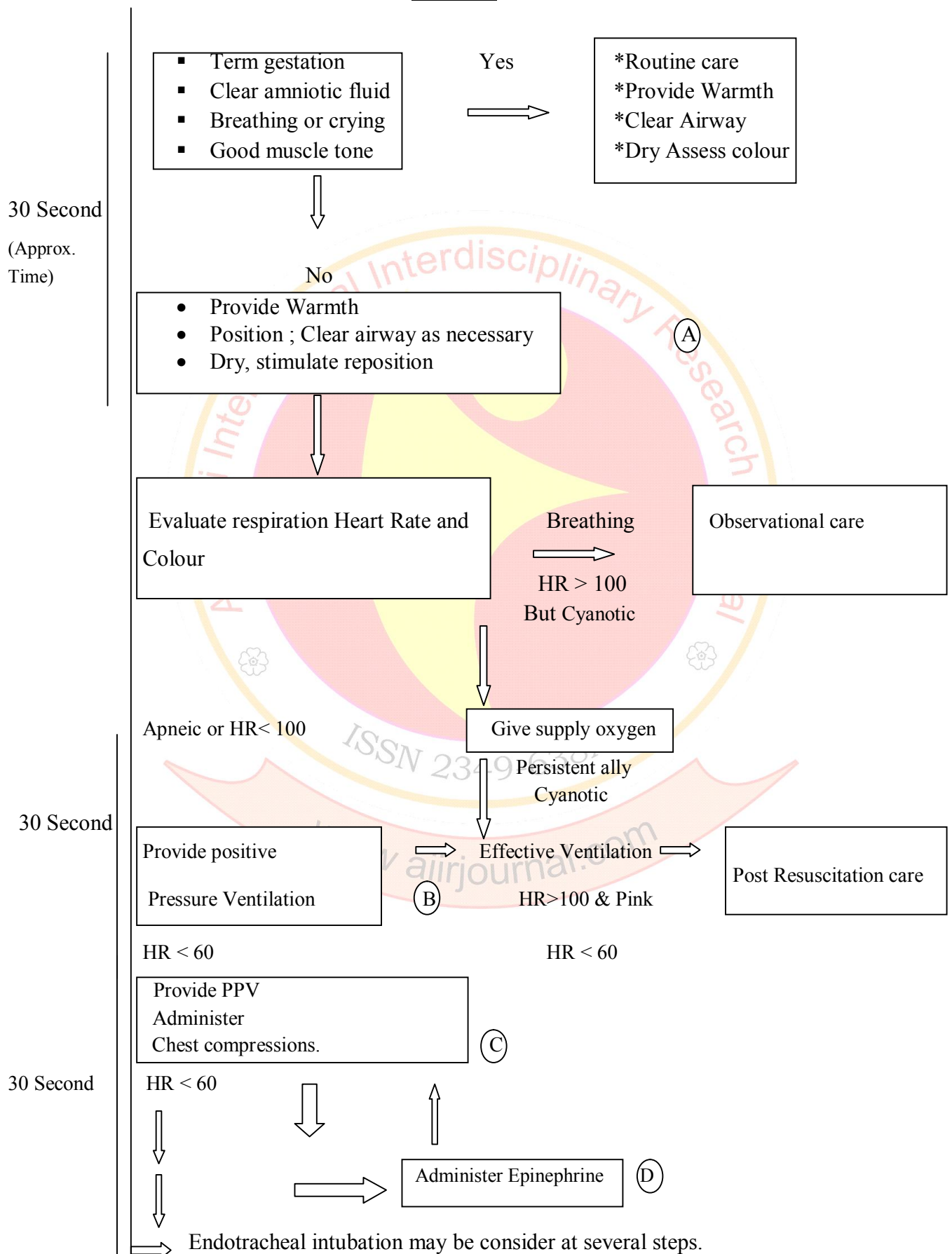
To treat above mentioned features :

Srotasas should be cleaned by giving gomutra in between feeding.

Ghrita medicated with bilvadinmula , pancho cola, Vidanga , Sainadava, Hingu, vyoshi should be given orally

Milk (breastmilk) Medicated with Trikatu, Vartaki, Vacha and Haridra should be given.

Birth



Key Points :-

Most newly born babies are vigorous. Only 10% percent require some kind of assistance and only 1% need major resuscitation measures. (intubation, chest compression, and or medications.) to survive.

The most important and effective action in neonatal resuscitation is to ventilate baby's lungs.

Initiation of effective positive pressure ventilation during secondary apnea usually results in rapid improvement in heart rate.

All newborn require initial assessment to determine whether resuscitation is required Resuscitation should proceed rapidly

You have approximately 30 sec. to achieve a response from one step before deciding whether you need to go to the next step. Evaluation and decision making are based primarily on respiration, heart rate & colour.

Referred book –

- 1] Charaka Samhita with chakrapani commentary 1st edition/first part chaukhamba S. Series Varanasi.
- 2] Susruta Samhita hindi commentary by Dr. Ambika Dutta Shastri 3rd edition chaukhamba series Varanasi.
- 3] Astang Samgraha hindi commentary by atridev gupta – first edition chaukhamba S. Series Varanasi
- 4] Astanga hridaya hindi commentary by Vaidya first edition Varanasi.
- 5] Prasutitantra & Stree roga by Dr. P.V. Tiwri first edition chaukhamba Varanasi.
- 6] Bhel Samhita.

Bibilo graphy:-

- 1) Care of the newborn 5th edition by Meharban Singh, Sagar Publications , New Delhi.
- 2) Neonatal Resuscitation Manual.As per NRP, guidhlines American Academy Of Pediatrics 2005.