



**DIAGNOSIS AND MANAGEMENT OF FETAL DISTRESS: A REVIEW BASED ON
MODERN CONCEPT AND ANCIENT AYURVEDIC GRANTHAS**

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ABSTRACT

Fetal heart rate monitoring gives information of condition of fetus that whether or not the child in utero is broadcasting signals of distress. New modern techniques help to detect fetal distress conditions at early stages. Decision regarding to continue or terminate pregnancy plays significant role in the management of such condition; the safest and best possible method of delivery needs to be adopted; vaginal or operative which help to decreased intrauterine fetal death and intra partum fetal death incidences. This article summarizes diagnostic and therapeutic management of fetal distress based on modern concept and ancient literatures of ayurveda.

KEYWORDS: Fetal Distress, Hypoxic, Acidotic Condition, Neonatal Stress, Ayurveda.

INTRODUCTION

Fetal distress involves hypoxic or acidotic condition of fetus during intrauterine life or during intra partum. It may result fetal damage or death if fetus not delivered immediately. The various parameters used to determine the type and degree of distress are neonatal stress test (NST), electronic fetal heart rate monitoring, fetal movement (Frequently decrease and weaken), biophysical profile, diagnosis of fetal Acidosis by FBS (fetal scalp blood sample), CTG (Cardiotomography). It can be corrected by resuscitation measures thereby allowing labor to continue and provide time for arrangement to be made for operative delivery including time for transferring the women to hospital equipped to handle emergency cesarean delivery.

Some literatures of ayurveda resemble fetal distress mentioned as 'Garbha Vippanavasta'. Fetal movement was only the criterion which was used for assessing fetus in utero. Ayurveda try to explain the cause for such fetal condition and management. Obstetrician also faced the problems regarding neonatal distress so Ayurveda mentioned management of fetal distress as 'jatamatraparicharya'.^[1-6]

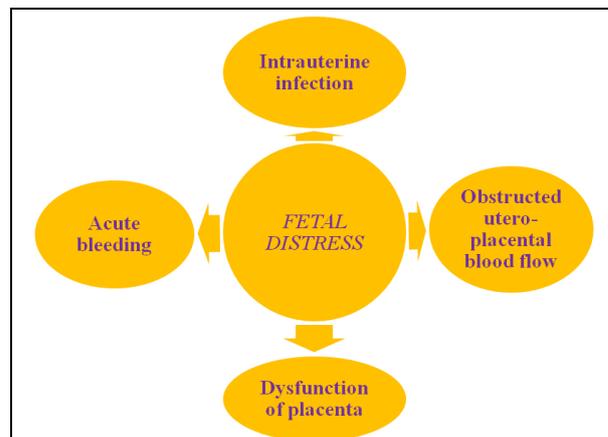


Figure 1. Etiological Factors of Fetal Distress.

Modern Aspect of Diagnosis and Management of Fetal Distress

Definition

Fetal distress is defined as depletion of oxygen and accumulation of carbon dioxide, leading to a state of "hypoxia and acidosis" during intra-uterine life.

Etiology

- Low oxygen carried by RBC (severe anemia).
- Acute bleeding (placenta previa, placental abruption).
- Obstructed utero-placental blood flow.
- Dysfunction of placenta.
- Malformations of cardiovascular system.
- Intrauterine infection.

Causes of Hypoxia (Maternal factors)

- Pregnancy-induced or chronic hypertension
- Maternal infection
- Diabetes
- Chronic substance abuse
- Asthma
- Seizure disorders

Intra-partum causes of fetal hypoxia

- Premature onset of labor
- Prolonged labor
- Administration of narcotics and anesthetics
- Rupture of membrane more than 24 hours prior to delivery
- Maternal hypoventilation
- Maternal hypoxia

Pathophysiology of fetal hypoxia

In acute fetal distress or during intra-partum fetal distress, due to insufficient supply of oxygen to fetal, anaerobic glycolysis occurs which leads to accumulation of lactic acid and pyruvic acid (metabolic acidosis); due to metabolic acidosis, H⁺-ions gets stimulated & it depresses node of fetal heart which causes irregular FHS. In Chronic fetal distress; there is poor uterine blood flow to placenta for long time which results in inadequate transfer of blood flow to fetal pulmonary & renal system organs which resulted fetal hypoxia and acidosis.

Clinical diagnosis of fetal distress (Acute fetal distress)

- Electronic fetal heart rate monitoring.
- Fetal movement (frequently decreases and weakens).
- Diagnosis of fetal Acidosis by FBS (fetal scalp blood sample)
- CTG (Cardiotomography)

Neonatal fetal distress

Intra-partum hypoxia is thought to be the leading cause of cerebral palsy and now accounts for 3 to 15% of cerebral palsy cases. Chronic fetal hypoxia, caused by maternal smoking or anemia, may also contribute to a predisposition for Sudden Infant Death Syndrome (SIDS). APGAR score is used to determine the condition of neonate. It includes appearance, pulse, grace, activity and respiration.

Management of intra-partum fetal distress**A) Maternal care**

- Change in maternal position: Left lateral position to mother avoids compression of vena cava and aorta by gravid uterus. It increases cardiac output and uteroplacental perfusion.
- Hydration: For correction of maternal hypotension.

B) Tocolysis: Use of tocolytic drugs to decrease hypertonus uterus.

C) Amnioinfusion: Increase intrauterine fluid volume with warm normal saline.

- Cord Compression.

- To dilute or to wash out meconium

D) Immediate delivery: Labour should be monitored with repeat testing. If fetal distress continues urgent delivery by safest method should be done. Cesarean sections with 15 degree lateral tilt are performed if all else fails and are the last alternative when faced with the possibility of fetal distress.

Management of Perinatal Asphyxia

Perinatal asphyxia is diagnosed by APGAR score and its management by neonatal resuscitation should be done. In mild asphyxia, stimulate cry, clean airway, oxygen supply and assisted ventilation may offer relief.

In moderate asphyxia, endotracheal intubation, intermittent positive pressure ventilation should be done. In severe asphyxia, immediate intubation, IPPV, suction, external cardiac massage, intravenous fluids and drugs and biochemical monitoring should be done.

Ayurveda Concept of Fetal & Neonatal Distress

'Fetal distress' is mentioned as '*GarbhaVippanavasta*' in Ayurvedic texts. Various *Samhitagrathas* like *charaksamhita*, *sushrutasamhita*, *ashtanghridayam*, *ashtangsamgraha*, *kashyapasamhita*, has mentioned conditions which resembles fetal distress. Fetal movement was used for assessing fetus in utero, slow movement of fetus is mentioned as *Linagarbha*.

Causes as per Ayurveda

Abnormalities of *strotasas* caused by complications of *vata-dosha* (*vikrutavayu*) causes fetus inactive or slow movements. This condition may be compared with placental deformities leading to chronic placental insufficiency or insufficient nutrition supply from mother to fetus due to maternal malnutrition.

Management of Fetal & Neonatal Distress

Ashtang Hridayamgrantha mentioned that treatment of this condition needs proper nutritional supply to mother like; sweet, liquid diet including milk, ghee, meat-soup, rice, etc.^[4-7]

In sever fetal distress conditions if fetus conditions get worsen or fetus get dead then expulsion of fetus is suggested.^[8,9] Operative delivery also advised if fetal death occurs because this may harm to the mother by producing asphyxia^[10] and if mother gets died due to prolonged or obstructed labour and fetus still alive.^[11]

Management of Neonate as per Ayurveda

In *Ayurvedicgranthas*, management of newborn child is mentioned as '*Jatamatraparicharya*'^[12-14]

- Production of sound by striking two stones near the base of ear of neonate. Sprinkle hot water or cold water over face of baby. Reason behind it is baby gets relief from the troubles caused during delivery and regains life.

- Bath should be given after baby has become totally normal. After that women should wrap the finger with well washed cotton swab and cleanses the palate lips throat and tongue of the child with this finger and then cover the anterior fontanelle with cotton impregnated with oil.
14. Shastri Ambikadatta, Editor, Ayurveda-Tattva-Sandipika (Hindi Commentary) on Sushruta Samhita, Chaukhambha Sanskrit Sansthan Varanasi, Edition 2005, Sharirsthan Chapter 10, Verse.No.12, 13.

Resuscitation of unconscious/asphyxiated child

- If born child is unconscious (asphyxiated), then fanning winnowing baskets made up of *krishnakapalika* (broken earthen pot should be done).
- Striking of stones near the ear and irrigation of face with hot /cold water should be done until neonate is revived or its respiration has established properly.^[12,13]

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