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## Review Article

### INFANT ALCOHOL EXPOSURE - "BAALA MADATYAYA": AN AYURVEDIC VIEW

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#### ABSTRACT

Breast feeding is the safest and best method for nurturing and optimising infant growth and health. The risks of drinking alcohol while breast feeding, however are not well defined. Alcohol consumed by a lactating mother enters the breast milk and shows detrimental effects like deficit in motor development, reduced lactation performance and disrupted sleep-wake behavioural patterning in infants. 'Kashyapa samhita' is the only Ayurvedic text recognized and quoted the condition called 'Baala Madatyaya'. The present article explores the similarities between the condition of 'Baala madatyaya' explained in Ayurveda and 'Infant alcohol exposure through breast feeding / acute alcohol intoxication in infants'. Moorcha (loss of consciousness), Prajaagara (insomnia / sleep disturbances), Chhardi (vomiting, aversion to wet nurse / breast milk), Arati (restlessness), Bhrama (giddiness / disorientation), Vitraasa (fear), Udvega (anxiety), Trishna (excessive thirsty) are the signs and symptoms of 'Baala madatyaya' which are similar to infant alcohol exposure through breast milk.

**Key Words:** Infant alcohol exposure, Breast milk, Breast feeding, Baala madatyaya, Ayurveda, Kashyapa samhita

#### INTRODUCTION

Breast feeding is the safest and best method for nurturing and optimising infant growth and health. Considerable research has been conducted in to the effects of alcohol on the developing embryo, and foetal alcohol syndrome has become recognized as the foremost, preventable, non genetic cause of intellectual impairment. Despite the popular folklore belief that consuming alcohol when breast feeding will promote lactation and relax the infant and mother, the available research provides evidence to the contrary.<sup>1</sup> Mothers of breast feeding infants who drank quite heavily leads to intoxication or infants were feed alcohol. Although the amount of alcohol ingested in breast milk is a minute fraction of that consumed by the mother, previous study revealed that such exposure may subtly affect the infant's behaviours in short term.<sup>2</sup>

'Kashyapa samhita' is the only textbook recognized or quoted the condition called 'Baala Madatyaya' (acute alcohol intoxication / infant alcohol exposure through breast milk) in infants. The signs and symptoms of 'Baala madatyaya' are explained in 'Kashyapa samhita', 'sutra sthana', 'Vedana adhyaya' chapter. Except the signs and symptoms of 'Baala madatyaya', the etiology, pathology, treatment is not explained in 'Kashyapa samhita'.<sup>3</sup> The present article explores the similarities between the condition of 'Baala madatyaya' and 'Infant alcohol exposure through breast feeding / acute alcohol intoxication in infants'.

#### EFFECTS OF ALCOHOL ON BREAST FEEDING MOTHER & CHILD

The risks of drinking alcohol while breast feeding, however are not well defined. Currently some mothers are still advised by physicians to drink, even though an acceptable level of alcohol in breast milk has never been established. Alcohol consumed by a

mother passes easily in to breast milk of concentrations similar to those found in her blood stream. A nursing infant is actually exposed to only a fraction of the alcohol the mother ingests, but infants detoxify alcohol in their first weeks of life at only half the rate of adults. Several proven adverse effects of alcohol on suckling infants like impaired motor development, changes in sleep patterns, decrease in milk intake and risk of hypoglycaemia were found. Evidence indicates that the presence of alcohol in breast milk has an overall effect of decreasing infant consumption by 23%. No alcohol in breast milk is safest for nursing babies.<sup>4</sup>

Alcohol consumed by a lactating mother enters the breast milk within 30 – 60 minutes after ingestion and depending on the amount consumed, may have detrimental effects on the infant. Deficit in motor development, reduced lactation performance, disrupted sleep-wake behavioural patterning of the infant were reported in previous works.<sup>5</sup> In human infants, 20% reductions in the amount of breast milk consumed have been seen during the 3-4 hrs following acute maternal intake of alcohol. This decline in intake is due to reduced breast milk production, rather than rejection of the mother's milk, a lower number of feeds, or a reduction in the breast feeding time.<sup>6</sup>

Alcohol consumption by lactating women in excess of 0.5 g/kg of maternal weight may be harmful to the infant; large amounts leads to, drowsiness, diaphoresis, deep sleep, weakness, decrease in linear growth and abnormal weight gain. Maternal ingestion of 1 g/kg daily leads to decrease in milk ejection reflex. Alcohol use during breast feeding has adverse effects on the infant. With moderate to high intakes, alcohol levels were higher in breast milk than in blood.<sup>1</sup>

One case report of excessive alcohol intake by breast feeding mother on her four months old baby reported, increased weight gain, slowing in rate of growth, balloon shaped face in baby.

Alcohol increases cortisol levels in the blood and can give rise to a clinical pattern that closely resembles ‘Cushing syndrome’. The baby was diagnosed as ‘Pseudo cushing syndrome’ subsequently reversed with the removal of alcohol from the mother’s diet. The developing brain is extremely sensitive to ethanol even in very small quantities or the small quantities ingested during lactation are accumulated in the infant because it is metabolized or excreted more slowly than in adults. Infants consumed approximately 20% less breast milk during the first hour after exposure to alcohol in the mother’s milk and then compensated for this diminished intake during the 8-12 hour by increasing the number of breast feedings that occurred in this time.<sup>1</sup>

Alcohol consumption in lactating women resulted in significant decrease in oxytocin levels and in increase in prolactin levels, measure of sedation, dysphoria and drunkenness. Alcohol consumption leads to significant increase in cortisol levels. Recommending alcohol as an aid for lactation may be counterproductive.<sup>7</sup> Infants consumed significantly less milk during the four hours immediately after exposure to alcohol in mother’s milk compared with the control condition.<sup>8</sup> Ethanol ingested through breast milk has a slight but significant detrimental effect on motor development, but not mental development, in breast fed infants.<sup>9</sup>

Excess levels of alcohol in breast milk leads to drowsiness, deep sleep, weakness and decreased linear growth and psychomotor delay in the infant.<sup>10</sup> Beer consumption by nursing women alters

the behaviour of their infants during breast feeding in the short term. The consumption of a single dose of alcoholic beer by nursing mothers flavoured their milk and decreased the amount of milk consumed by their infants. A change in the flavour of mother’s milk may result in varied behavioural changes in the nursling.<sup>11</sup> Exposure to alcohol through expressed breast milk resulted in definite changes in infant’s sleep wake patterning. There was a significant reduction in the length of time spent sleeping after consumption of alcohol-flavoured milk. Alcohol has been shown to disrupt the hormone control of lactation by decreasing milk ejection reflex through the inhibition of oxytocin and decrease in milk intake by infant which leads to decline in body weight, growth and other vital developmental indices.<sup>1</sup>

### SIGNS & SYMPTOMS OF BAALA MADATYAYA

The complete chapter of ‘Vedana adhyaya’, of ‘Kashyapa samhita’ deals with the description of signs of different diseases in infants. As infants are unable to speak or convey their suffering, this chapter is mainly focused on diagnosing a condition based on the infant’s behaviour or demonstrable clinical signs. Baala madatyaya is termed as ‘wine intoxication’. Moorcha (loss of consciousness), Prajaagara (insomnia / sleep disturbances), Chhardi (vomiting, aversion to wet nurse / breast milk), Arati (restlessness), Bhrama (giddiness / disorientation), Vitraasa (fear), Udvega (anxiety), Trishna (excessive thirsty) are the signs and symptoms of ‘Baala madatyaya’ as explained in the vedana adhyaya of Kashyapa samhita.<sup>12,13</sup>

**Table 1: Similarity between the conditions of Baala madatyaya and infant alcohol exposure through breast feeding**

| S.No | Signs & symptoms of Baala madatyaya | Infant alcohol exposure through breast feeding  |
|------|-------------------------------------|---|
| 1    | Moorcha                             | Risk of hypoglycemia <sup>4</sup><br>Drowsiness / Deep sleep / Weakness <sup>1,10</sup><br>Sedation <sup>11</sup><br>Stupor or Coma <sup>14</sup>   |
| 2    | Prajaagara                          | Changes in sleep patterns <sup>4</sup><br>Disrupted sleep-wake behavioral patterning <sup>5</sup><br>Reduction in length of time sleeping <sup>1</sup><br>Disrupt sleep patterns <sup>11</sup><br>Altered infant’s sleep-wake patterning, slept significantly shorter periods of time, shortening in the amount of time spent in active sleep <sup>2</sup>  |
| 3    | Chhardi                             | Aversion towards the breast milk may be because of alcohol flavor??<br>Vomiting due to irritation by alcohol in stomach??   |
| 4    | Dhaatri dvesha                      | ‘Nursing strike’ due to altered taste of milk <sup>11</sup><br>Disruption in infant’s suckling behavior and changes in the infants behavior <sup>7</sup><br>Behavioral changes in infants and decrease in milk intake by infants <sup>11</sup><br>Behavioral changes in infants <sup>1</sup><br>Alteration in infants behavior may be in response to the alcohol flavoring of the milk <sup>2</sup> |
| 5    | Arati                               | Restlessness <sup>1</sup>   |
| 6    | Bhrama                              | Central nervous system depression, slowed thinking, distractibility, poor motor control, ataxia, incoordination, loss of self control etc <sup>14</sup> acute alcohol intoxication features may be due to the presence of alcohol in infant’s blood stream  |
| 7    | Vitraasa & Udvega                   | Agitation <sup>11</sup>   |
| 8    | Trishna                             | May be due to diaphoresis <sup>1</sup>  |

The essential features of alcohol intoxication include, incoordination, impairment in attention or memory, stupor or coma, nystagmus, mood and behaviour changes.<sup>15</sup> Ayurveda has always given importance to the care of female during every phase of her life in respect of Rajaswala paricharya (menstrual care), Garbhini paricharya (ante natal care) and Sutika paricharya (post natal care). Sutika paricharya helps the women to regain her lost vitality and helps her body to revert back to pre-pregnant state. The main objectives of sutika paricharya is, garbhashaya shuddhi (uterine cleansing), dhatu paripurnata (regain optimum tissue health / to fulfil optimum nutrition), stanya vriddhi (galactagogue) and punar naveekarana (restoration of health /

fitness). Madyapana (alcohol intake) is not suggested by any Ayurvedic text in sutika paricharya.<sup>16,17</sup> The condition of “Baala madatyaya” explained in Kashyapa samhita, may be due to the mother suffering with “madatyaya (alcohol abuse)” by which infant got exposure to alcohol through breast feeding or accidental poisoning of alcohol in infant.

### CONCLUSION

The signs and symptoms of ‘Baala madatyaya’ are similar to the condition of infant alcohol exposure through breast milk. The condition of ‘Baala madatyaya’ explained in ‘Kashyapa samhita’

indicates either acute alcohol intoxication in infant through breast feeding or accidental exposure to alcohol.

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