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"Integrative Review of Neonatal Respiratory Distress: Ayurveda and Modern Neonatology"

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Abstract

Neonatal Respiratory Distress (NRD) is a major contributor to neonatal morbidity and mortality, particularly in preterm infants. In modern neonatology, NRD is primarily attributed to pulmonary immaturity, surfactant deficiency, and impaired gas exchange, leading to hypoxia and respiratory failure. Current management focuses on rapid stabilization through oxygen therapy, continuous positive airway pressure (CPAP), mechanical ventilation, and surfactant replacement. While these interventions have significantly improved survival, they mainly address acute physiological disturbances and may not fully support long-term functional recovery. Ayurveda offers a complementary framework by interpreting NRD as a disturbance of Vata and Kapha Doshas affecting the Pranavaha Srotas, the channels responsible for respiration. The concept of Pranapratyagamana, or restoration of vital life force, reflects principles similar to modern resuscitation. Ayurveda also emphasizes the importance of Beeja (genetic integrity), maternal health, and Garbhini Paricharya (antenatal care) in ensuring proper fetal development, including lung maturation. This integrative review highlights the potential synergy between modern and Ayurvedic approaches. Modern medicine provides life-saving interventions during the acute phase, while Ayurveda contributes preventive strategies and supportive care. Practices such as Abhyanga (gentle oil massage) and Rasayana therapies may enhance immunity, improve growth, and support neurodevelopment during recovery. The integration of these systems suggests a continuum of care that begins with prenatal health optimization and extends to postnatal rehabilitation. Such a model may reduce complications, improve resilience, and enhance long-term outcomes in neonates with respiratory distress. However, further scientific validation through clinical research is essential to establish safety, efficacy, and standardization.

In conclusion, combining modern neonatology with Ayurvedic principles offers a holistic and promising approach to managing neonatal respiratory distress, focusing not only on survival but also on overall neonatal well-being and development.

Keywords Neonatal Respiratory Distress, Ayurveda, Prana Vayu, Kapha Avarana, Neonatology, Integrative Medicine

Introduction

Neonatal Respiratory Distress (NRD) is a critical clinical condition occurring in the early neonatal period, characterized by signs such as tachypnea, chest retractions, nasal flaring, and cyanosis. It remains one of the leading causes of neonatal morbidity and mortality worldwide, particularly among preterm infants. According to the World Health Organization, neonatal complications, including respiratory disorders, contribute significantly to under-five mortality, emphasizing the need for timely diagnosis and effective management. [1] *From the perspective of modern neonatology, NRD is primarily associated with conditions such as Respiratory Distress Syndrome, Transient Tachypnea of the Newborn, Meconium Aspiration Syndrome, and Neonatal Pneumonia. The underlying pathophysiology commonly involves surfactant deficiency, delayed clearance of fetal lung fluid, inflammation, and impaired gaseous exchange, leading to hypoxia and metabolic acidosis. Advances in neonatal intensive care—such as surfactant replacement therapy, oxygen supplementation, and mechanical ventilation—have significantly improved survival outcomes, although challenges persist in low-resource settings. These concepts are well described in standard texts like Nelson Textbook of Pediatrics.* [2] *In contrast, Ayurveda interprets neonatal respiratory distress through a functional and holistic framework. Although neonatal respiratory distress as a single entity is not explicitly described in classical Ayurvedic texts, its clinical manifestations can be correlated with conditions arising from vitiation of Prana Vayu, obstruction by Kapha (Kapha Avarana), and disturbance of Udana Vayu. Classical references from Charaka Samhita and Sushruta Samhita emphasize the importance of proper fetal development (Garbha Vriddhi), maternal health (Garbhini Paricharya), and balanced Doshas in preventing neonatal disorders. Clinical features such as weak cry, breathlessness, and cyanosis can be interpreted as manifestations of Pranavaha Srotas Dushti and Murchha Avastha, indicating impairment of vital respiratory and oxygenation mechanisms* [3] *An integrative approach combining modern neonatology with Ayurvedic principles offers a more comprehensive understanding of neonatal respiratory distress. While modern medicine emphasizes acute life-saving interventions such as oxygen therapy, ventilation, and surfactant replacement, Ayurveda contributes significantly through preventive strategies including Garbhini Paricharya, Rasayana therapy, and holistic neonatal care. This dual approach enhances prevention, facilitates early detection, and improves supportive management, especially in resource-limited settings, ultimately contributing to better neonatal outcomes.* [4]

Modern Perspective of Neonatal Respiratory Distress (NRD)

Neonatal Respiratory Distress (NRD) is a common and potentially life-threatening condition encountered in the early neonatal period, contributing significantly to neonatal morbidity and mortality worldwide Kliegman et al., 2020. [5] *It represents the inability of the neonatal respiratory system to maintain adequate gas exchange following birth.*

Etiology

The etiology of NRD is multifactorial. Prematurity is the most important risk factor, primarily due to surfactant deficiency resulting from immature type II pneumocytes Sweet et al., 2019. [6] *Perinatal asphyxia also plays a significant role by impairing lung perfusion and gas exchange Martin et al., 2021.* [7] *Meconium aspiration syndrome occurs when the fetus inhales meconium-stained amniotic fluid, leading to airway obstruction and chemical pneumonitis Cloherty et al., 2012.* [8] *Additionally, infections such as neonatal pneumonia and sepsis can precipitate respiratory distress by causing inflammation and alveolar damage WHO, 2019.* [9]

Pathophysiology

The central mechanism in NRD involves surfactant deficiency, which leads to increased alveolar surface tension and subsequent alveolar collapse (atelectasis) Avery et al., 2018. [10] *This results in reduced lung compliance, making ventilation more difficult. The impaired gas exchange leads to hypoxia and retention of carbon dioxide, resulting in respiratory acidosis* [11]. *Persistent hypoxia further causes pulmonary vasoconstriction, increasing pulmonary vascular resistance and exacerbating right-to-left shunting of blood, thereby worsening oxygenation Martin et al., 2021.* [12]

Clinical Features

The clinical presentation of NRD is characterized by signs of increased work of breathing. Tachypnea (respiratory rate >60/min) is usually the earliest sign Kliegman et al., 2020. [13] *Chest indrawing, particularly intercostal and subcostal retractions, indicates increased respiratory effort. Nasal flaring is a compensatory mechanism to reduce airway resistance, while expiratory grunting helps maintain positive airway pressure Cloherty et al., 2012.* [14] *Cyanosis is a late and serious sign, indicating significant hypoxemia.*

Complications

If not promptly managed, NRD can lead to severe complications. Hypoxic-ischemic encephalopathy (HIE) may occur due to prolonged oxygen deprivation affecting the brain Liu et al., 2020. [15] *Chronic lung disease, including bronchopulmonary dysplasia, is a common sequela in preterm infants requiring prolonged ventilation Sweet et al., 2019.* [16] *Additionally, neurodevelopmental delays may arise as a long-term consequence of hypoxia and systemic complications WHO, 2019.* [17]

Management

The management of NRD focuses on maintaining adequate oxygenation and ventilation. Oxygen therapy is the initial step to correct hypoxemia Kliegman et al., 2020. [18] *Continuous Positive Airway Pressure (CPAP) is commonly used to prevent alveolar collapse and improve functional residual capacity. In severe cases, mechanical ventilation may be required Martin et al., 2021.* [19] *Surfactant replacement therapy is a cornerstone in the treatment of surfactant-deficient states, significantly improving survival rates Sweet et al., 2019.* [20] *Supportive care in the Neonatal Intensive Care Unit (NICU), including thermal regulation, fluid management, and infection control, is essential for optimal outcomes Cloherty et al., 2012.* [21]

Ayurvedic Perspective of NRD (Neonatal Respiratory Distress)

Neonatal Respiratory Distress (NRD) can be interpreted in Ayurveda through disturbances in Prana Vayu, which governs respiration and vital life functions. Prana Vayu Dushti leads to impaired breathing, irregular respiratory rhythm, and difficulty in oxygenation, reflecting the clinical features of respiratory distress in neonates (1). Along with this, Kapha Dosha plays a crucial role by causing Avarana (obstruction) in the Pranavaha Srotas, resulting in airway blockage, accumulation of secretions, and restricted airflow (2). Further, Udana Vayu Vaigunya contributes to a weak or feeble cry, which is an important clinical indicator of poor respiratory effort and compromised vitality in newborns (3). In severe conditions, oxygen deprivation leads to a state comparable to Murchha Avastha (loss of consciousness), indicating systemic hypoxia and reduced cerebral perfusion (4). From the Dosha–Dushya–Srotas perspective, NRD predominantly involves Vata (Prana Vayu) and Kapha Dosha, affecting Rasa and Rakta Dhatu, which are essential for nourishment and oxygen transport. The channel involved is Pranavaha Srotas, whose dysfunction leads to deranged respiration and impaired gaseous exchange (5). Thus, NRD represents a Vata-Kapha dominant pathology with srotorodha and prana impairment. Charaka Samhita, Sutrasthana 12/8, 2. Charaka Samhita, Vimanasthana 5/7, 3. Ashtanga Hridaya, Sutrasthana 12/4, 4. Charaka Samhita, Sutrasthana 21/11, 5. Charaka Samhita, Vimanasthana 5/8. [22] *Table1:showingAyurveda–Modern Correlation*

Modern Concept	*Ayurvedic Interpretation*
Surfactant deficiency	*Kapha imbalance (Snigdha guna dysfunction)*
Hypoxia	*Prana Vayu Kshaya*
Respiratory distress	*Pranavaha Srotas Dushti*
Airway obstruction	*Kapha Avarana*
Apnea	*Vata Vyapad*

Integrative Pathophysiology and Management of Neonatal Respiratory Disorders (NRD)

Neonatal respiratory disorders (NRD) arise from structural lung immaturity and functional imbalance during the transition to extrauterine life. In modern medicine, surfactant deficiency leads to alveolar collapse, reduced compliance, hypoxia, and acidosis. Ayurveda interprets this as Prana Vayu Dushti with Kapha Avarana, impairing respiration and oxygenation. Integrative management combines neonatal resuscitation, oxygen/CPAP, and surfactant therapy with supportive Ayurvedic measures such as thermal care, breastfeeding, and gentle Abhyanga after stabilization. This dual approach improves survival and recovery while promoting holistic neonatal health World Health Organization; Charaka Samhita; Nelson Textbook of Pediatrics. [23]

Integrative Pathophysiology

Integrative pathophysiology of Neonatal Respiratory Distress links modern structural defects with Ayurvedic functional imbalance. In Respiratory Distress Syndrome, lung immaturity and surfactant deficiency cause alveolar collapse, reduced compliance, and impaired gas exchange, leading to hypoxia, hypercapnia, and metabolic acidosis Sweet et al., 2019; World Health Organization, 2020. [24] *Ayurveda interprets this as Prana Vayu Dushti, affecting respiration, along with Kapha Avarana causing obstruction of Pranavaha Srotas, comparable to mucus-related airway resistance Sharma, Charaka Samhita.* [25] *Thus, modern medicine emphasizes anatomical and biochemical defects, whereas Ayurveda focuses on Dosha imbalance and Srotorodha. This integrative approach connects structure with function and explains variation in clinical severity among neonates, improving understanding of disease progression and guiding holistic management.*

Integrative Management Approach of Neonatal Respiratory Distress

Neonatal Respiratory Distress requires a multidisciplinary and integrative approach, combining life-saving modern interventions with supportive Ayurvedic care. This approach ensures both immediate survival and long-term recovery.

Acute Phase (Modern Priority)

In the acute stage, modern neonatology is the cornerstone of management. The primary goal is to stabilize the neonate and restore adequate oxygenation. Immediate interventions include neonatal resuscitation at birth, oxygen supplementation, and ventilatory support such as CPAP or mechanical ventilation. In conditions like Respiratory Distress Syndrome, surfactant replacement therapy is essential to correct surfactant deficiency and improve lung compliance. Additionally, maintaining thermal stability and proper fluid–electrolyte balance is crucial to prevent metabolic complications. These interventions directly address hypoxia and reduce the risk of severe complications such as Neonatal Asphyxia and multi-organ dysfunction WHO, 2023; Cloherty & Stark Neonatology. [26]

Ayurvedic Supportive Care (Post-Stabilization)

Once the neonate is stabilized, Ayurveda plays a supportive and restorative role. The focus shifts from emergency management to improving tissue strength, immunity, and neurodevelopment.1. Medhya Rasayana such as Brahmi and Shankhapushpi enhance neuro-respiratory coordination and cognitive outcomes. 2. Ghrita preparations (medicated ghee) support Majja Dhatu (nervous tissue), providing neuroprotection and nourishment. 3. Balya therapies improve strength (Bala), immunity (Ojas), and growth. These therapies help restore Dosha balance (especially Prana Vayu and Kapha) and promote holistic healing rather than only symptomatic relief (Charaka Samhita, Sutrasthana 28. [27]

Preventive Approach

Prevention is a key principle in Ayurveda. Proper Garbhini Paricharya (antenatal care) ensures optimal fetal development, including lung maturity. Balanced maternal nutrition, stress management, and avoidance of toxins reduce the risk of prematurity and low birth weight. Ayurveda emphasizes that maternal health directly influences neonatal outcomes Sushruta Samhita, Sharirasthana. [28]

Rehabilitation and Long-Term Care

After the acute phase, long-term follow-up is essential. Early neurodevelopmental stimulation improves outcomes, while Rasayana drugs enhance immune function. Regular growth monitoring ensures timely detection of delays. This phase is crucial in preventing chronic complications such as Bronchopulmonary Dysplasia and developmental disabilities NIH Neonatal Care Guidelines, 2022. [29]

Table2:showing Integrative therapy

Phase	*Modern Approach*	*Ayurvedic Approach*	*Outcome*
Acute Phase	*Resuscitation, Oxygen, CPAP, Surfactant*	*Not applied (emergency)*	*Survival, oxygenation*
Post-Stabilization	*Monitoring, nutrition*	*Medhya Rasayana, Ghrita, Balya*	*Recovery, neuroprotection*
Prevention	*Antenatal screening*	*Garbhini Paricharya, diet, lifestyle*	*Healthy fetus*
Rehabilitation	*Developmental therapy*	*Rasayana, immune support*	*Long-term growth & development*

Discussion

Neonatal Respiratory Distress (NRD) represents a major clinical challenge due to its high contribution to neonatal morbidity and mortality, especially among preterm infants. Modern neonatology attributes NRD primarily to structural and biochemical immaturity of the lungs, particularly surfactant deficiency, leading to alveolar collapse, hypoxia, and respiratory failure. Evidence-based interventions such as continuous positive airway pressure (CPAP), non-invasive ventilation, and surfactant therapy have significantly improved survival rates and reduced complications. [30] *However, despite these advancements, long-term outcomes such as neurodevelopmental delay and chronic lung disease remain concerns. From an Ayurvedic perspective, NRD can be interpreted as dysfunction of Pranavaha Srotas, governed mainly by Prana Vayu and Kapha Dosha. The impairment of these physiological systems leads to disturbed respiration, poor oxygenation, and reduced vitality. Ayurveda provides a functional and holistic explanation, correlating respiratory distress with Srotodushti (channel obstruction) and systemic imbalance rather than isolated structural defects .* [31] *This conceptual framework complements modern understanding by emphasizing systemic regulation and interconnection between organ systems. The integrative discussion highlights that both systems address different dimensions of the same pathology. Modern medicine focuses on acute stabilization and correction of physiological deficits, while Ayurveda emphasizes restoration of functional balance and long-term resilience. For instance, neonatal resuscitation described in modern guidelines parallels the Ayurvedic concept of Pranapratyagamana, indicating a convergence in the understanding of life-restoring interventions* [32] *Furthermore, Ayurvedic supportive measures such as Abhyanga (oil massage) and Rasayana therapies have shown benefits in improving immunity, weight gain, and neurodevelopment in neonates, suggesting potential roles in post-acute recovery and rehabilitation .* [33] *This aligns with the growing global interest in integrative medicine, where supportive therapies are used alongside standard care to enhance outcomes. Despite promising conceptual alignment, a major limitation remains the lack of robust clinical trials validating Ayurvedic interventions specifically in NRD. Current evidence supports integrative approaches in principle, but further interdisciplinary research is required to establish safety, efficacy, and standardized protocols. In conclusion, an integrative model combining modern life-saving interventions with Ayurvedic supportive care offers a comprehensive approach to NRD. Such a strategy not only improves survival but also enhances long-term developmental outcomes, reflecting the need for a holistic and patient-centered neonatal care paradigm.*

Conclusion

Neonatal Respiratory Distress remains a significant contributor to neonatal morbidity and mortality worldwide, requiring prompt and effective management. Modern neonatology provides advanced life-saving interventions such as ventilatory support, surfactant therapy, and intensive monitoring, which are crucial in the acute phase of conditions like Respiratory Distress Syndrome. However, these approaches primarily focus on immediate stabilization and physiological correction. Ayurveda, on the other hand, offers a holistic perspective by addressing the functional imbalance of Doshas, particularly Prana Vayu and Kapha, and emphasizes preventive and promotive healthcare. Concepts such as Beeja Shuddhi, Garbhini Paricharya, and Rasayana therapy contribute to improving fetal development, enhancing immunity, and supporting long-term recovery. Post-stabilization Ayurvedic interventions help in neurodevelopmental support and prevention of chronic complications like Bronchopulmonary Dysplasia. An integrative approach combining modern emergency care with Ayurvedic supportive and preventive strategies provides a comprehensive model for neonatal care. It not only improves survival rates but also ensures better quality of life and developmental outcomes. Thus, integrating traditional Ayurvedic wisdom with evidence-based modern medicine can significantly enhance neonatal healthcare delivery WHO, 2023; Charaka Samhita; Cloherty & Stark Neonatology. [34]

Reference

[1] World Health Organization. Newborns: improving survival and well-being. WHO; 2023. Available from: https://www.who.int/news-room/fact-sheets/detail/newborns-reducing-mortality

ference (Vancouver Style)

[2] Nelson Textbook of Pediatrics. Kliegman RM, St. Geme JW, Blum NJ, Shah SS, Tasker RC, Wilson KM, editors. Nelson Textbook of Pediatrics. 21st ed. Philadelphia: Elsevier; 2020.

[3] Charaka Samhita (Sharira Sthana 4/30–32) & Sushruta Samhita (Sharira Sthana 3/16–18). Chaukhambha Orientalia, Varanasi.

[4] World Health Organization. WHO Recommendations on Newborn Health: Guidelines Approved by the WHO Guidelines Review Committee. Geneva: World Health Organization; 2017.

[5] Kliegman RM, St. Geme JW, Blum NJ, Shah SS, Tasker RC, Wilson KM. Nelson Textbook of Pediatrics. 21st ed. Philadelphia: Elsevier; 2020.

[6] Sweet DG, Carnielli V, Greisen G, Hallman M, Ozek E, te Pas A, et al. European Consensus Guidelines on the Management of Respiratory Distress Syndrome – 2019 Update. Neonatology. 2019;115(4):432–450.

[7] Martin RJ, Harijith AK. The twofold NICU challenge: avoiding hypoxia and hyperoxia. Pediatric Research. 2021;90:4–5. DOI: 10.1038/s41390-021-01518-2

[8] Cloherty JP, Eichenwald EC, Hansen AR, Stark AR. Manual of Neonatal Care. 7th ed. Philadelphia: Lippincott Williams & Wilkins; 2012. p. 403–408.

[9] World Health Organization. Newborns: improving survival and well-being. Geneva: WHO; 2019. Available from: https://www.who.int/news-room/fact-sheets/detail/newborns-reducing-mortality

[10] Avery ME, McDonald MG, Seshia MMK. Avery's Diseases of the Newborn. 10th ed. Philadelphia: Elsevier; 2018. p. 589–600.

11] Respiratory Distress Syndrome in Neonates. MSD Manual Professional Edition. Available from: https://www.msdmanuals.com/en-gb/professional/pediatrics/respiratory

problems-in-neonates/respiratory-distress-syndrome-in-neonates?autoredirectid=8655&utm_source=chatgpt.com

[12] Richard J. Martin, Avroy A. Fanaroff, Michele C. Walsh. Fanaroff and Martin's Neonatal-Perinatal Medicine: Diseases of the Fetus and Infant. 11th ed. Philadelphia: Elsevier; 2020–2021.

[13]Kliegman RM, St. Geme JW, Blum NJ, Shah SS, Tasker RC, Wilson KM, editors. Nelson Textbook of Pediatrics. 21st ed. Philadelphia: Elsevier; 2020.Chapter: Respiratory Disorders in the Newborn.

[14] Cloherty JP, Eichenwald EC, Hansen AR, Stark AR. Manual of Neonatal Care. 7th ed. Philadelphia: Lippincott Williams & Wilkins; 2012. p. 396–401.

[15] Liu L, Oza S, Hogan D, Chu Y, Perin J, Zhu J, et al. Global, regional, and national causes of under-5 mortality in 2000–2019: an updated systematic analysis. Lancet Child Adolesc Health. 2020;4(7):467–473.

[16] Sweet DG, Carnielli V, Greisen G, Hallman M, Ozek E, Plavka R, et al. European Consensus Guidelines on the Management of Respiratory Distress Syndrome—2019 Update. Neonatology. 2019;115(4):432–450. doi:10.1159/000499361

[17] World Health Organization. Survive and Thrive: Transforming Care for Every Small and Sick Newborn. Geneva: WHO; 2019.

[18] Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM, editors. Nelson Textbook of Pediatrics. 21st ed. Philadelphia: Elsevier; 2020.

[19] Martin RJ, Fanaroff AA, Walsh MC. Fanaroff and Martin's Neonatal-Perinatal Medicine: Diseases of the Fetus and Infant. 11th ed. Philadelphia: Elsevier; 2021.

[20] Sweet DG, Carnielli V, Greisen G, Hallman M, Ozek E, Plavka R, et al. European Consensus Guidelines on the Management of Respiratory Distress Syndrome – 2019 Update. Neonatology. 2019;115(4):432–450.

[21] Cloherty JP, Eichenwald EC, Hansen AR, Stark AR. Cloherty and Stark's Manual of Neonatal Care. 7th ed. Philadelphia: Lippincott Williams & Wilkins; 2012.

[22] Charaka Samhita Acharya, J. T. (Ed.). (2014). Charaka Samhita (Reprint ed.). Varanasi: Chaukhambha Orientalia. (Original work published circa 1000 BCE) Ashtanga Hridaya Murthy, K. R. S. (Trans.). (2017). Ashtanga Hridaya. Varanasi: Chaukhambha Krishnadas Academy.

[23] World Health Organization. Survive and Thrive: Transforming Care for Every Small and Sick Newborn. Geneva: WHO; 2019. Charaka Samhita. Charaka Samhita, Sharira Sthana (relevant chapters on Garbha and neonatal care). Varanasi: Chaukhambha Orientalia; Reprint edition. Kliegman RM, St. Geme JW III, Blum NJ, Shah SS, Tasker RC, Wilson KM, editors. Nelson Textbook of Pediatrics. 21st ed. Philadelphia: Elsevier; 2020.

[24] Sweet DG, Carnielli V, Greisen G, Hallman M, Ozek E, Plavka R, et al. European consensus guidelines on the management of respiratory distress syndrome – 2019 update. Neonatology. 2019;115(4):432–450. World Health Organization. Target product profile for aerosolized surfactant therapy in neonates with respiratory distress syndrome. WHO; 2023.

[25] Charaka Samhita, Vimana Sthana 5/6 (Pranavaha Srotas concept) Sharma R.K., Bhagwan Das. Charaka Samhita (English Translation), Chaukhambha Sanskrit Series Supporting modern interpretation: Parmar P. et al., 2025 (JAIMS)

[26] World Health Organization World Health Organization. (2023). WHO recommendations on newborn health: Guidelines approved by the WHO Guidelines Review Committee. Geneva: WHO.

[27] Charaka Samhita. Charaka Samhita, Sutrasthana, Chapter 28 (Rasayana Adhyaya). Varanasi: Chaukhambha Orientalia; Reprint edition.

[28] Sushruta. Sushruta Samhita, Sharirasthana (Chapter 10: Garbhini Vyakarana / Management of Pregnancy). In: Bhishagratna KL, translator. Varanasi: Chaukhambha Sanskrit Series; Reprint. Verma S, Saxena A, Gupta D. Garbhini Paricharya and its Clinical Importance. J Ayurveda Integr Med Sci. 2024;9(8):42–45.

[29] National Institutes of Health Neonatal Care and Long-term Outcomes Guidelines. 2022. Available from: https://www.nichd.nih.gov/health/topics/neonatal-care

[30] Sweet DG, Carnielli V, Greisen G, Hallman M, Ozek E, Te Pas A, et al. European Consensus Guidelines on the Management of Respiratory Distress Syndrome – 2022 Update. Neonatology. 2023;119(4):347–364. doi:10.1159/000528915.

[31] Agnivesha, Charaka, Dridhabala. Charaka Samhita. Vimana Sthana 5/8; Chikitsa Sthana 28 (Shwasa Chikitsa). In: Brahmanand Tripathi, editor. Varanasi: Chaukhambha Surbharati Prakashan; 2017. Sushruta. Sushruta Samhita. Sharira Sthana 9/12. In: Kaviraj Ambikadutta Shastri, editor. Varanasi: Chaukhambha Sanskrit Sansthan; 2018. Vagbhata. Ashtanga Hridaya. Nidana Sthana 4 (Shwasa Roga Nidana). In: Kaviraj Atridev Gupta, editor. Varanasi: Chaukhambha Prakashan; 2016.

[32] American Heart Association (AHA), American Academy of Pediatrics (AAP). Textbook of Neonatal Resuscitation (NRP), 7th ed. Elk Grove Village, IL: AAP; 2020. Sushruta. Sushruta Samhita, Sharira Sthana. Varanasi: Chaukhambha Orientalia.

[33] World Health Organization. WHO recommendations on interventions to improve preterm birth outcomes. Geneva: WHO; 2015. Available from;https://www.who.int/publications/i/item/9789241508988

[34] World Health Organization. Newborn health: reducing mortality. Geneva: WHO; 2023. Available from:https://www.who.int/news-room/fact-sheets/detail/newborns-reducing-mortality ; Charaka Samhita. In: Tripathi B, editor. Varanasi: Chaukhambha Surbharati Prakashan; 2017 ; Cloherty and Stark's Manual of Neonatal Care. 8th ed. Philadelphia: Wolters Kluwer; 2017.