10.5005/jp-journals-10056-0037

EDITORIAL

Role of a Physiotherapist in Ventilated Neonates

[1]Abhijit Diwate, [2]Subhash Khatri

How to cite this article: Diwate A, Khatri S. Role of a Physiotherapist in Ventilated Neonates. Int J Educ Res Health Sci 2017;3(2):63.

Source of support: Nil

Conflict of interest: None

The neonatal mortality rate is high in developing countries like India owing to infections due to improper medical attention. One of the Millennium Development Goals is to reduce child mortality, which can be approached by taking control over infection-related mortality.[1] The poorest and the disadvantaged population like the marginalized, excluded communities and women and children are sufferers due to the heterogeneity in services and health inequality in India. Other causes like insufficient manpower at health care centers, poor infrastructure, and lack of funds pose a challenge to overcome this problem. In India, the neonatal mortality rate is 28 per 1000 live births, out of which 33% is due to infections. It has been found that upper respiratory tract infections, septicemia, pneumonia, and diarrhea are the commonly found infections responsible for neonatal mortality.[2]

The establishment of neonatal intensive care units has improved the survival rates in newborns. A significant number of neonates require mechanical ventilation, which has its own adverse effects, thereby increasing the fatality. Complications of mechanical ventilation in neonates include pneumothorax, atelectasis, pulmonary interstitial emphysema, pneumonia, chronic lung disease, nasopharyngeal infection, etc.[3] Mechanical ventilation leads to increased production of secretions, which are responsible for a number of infections.

[1]Professor and Head, [2]Principal

[1]Department of Cardiovascular and Respiratory Physiotherapy Dr. Vithalrao Vikhe Patil Foundation's College of Physiotherapy Ahmednagar, Maharashtra, India

[2]Dr. APJ Abdul Kalam College of Physiotherapy, Pravara Institute of Medical Sciences (Deemed University), Loni, Maharashtra India

Corresponding Author: Abhijit Diwate, Professor and Head Department of Cardiovascular and Respiratory Physiotherapy Dr. Vithalrao Vikhe Patil Foundation's College of Physiotherapy Ahmednagar, Maharashtra, India

A physiotherapist is mainly responsible for taking care of the neonate's lungs. Various techniques like percussions, vibrations, postural drainage, and suctioning are used. It has been noticed that ventilated patients fail to maintain their normal arterial oxygenation levels. It is possible to improve these oxygenation levels by removal of secretions and opening up of the areas of atelectasis by means of chest physiotherapy.[4] The physiotherapist first auscultates the chest of the baby to note for the location of abnormalities. Prior to commencing treatment, it is important to note baseline heart rate, mean blood pressure, oxygen saturation, and the ventilator parameters. The baby's flow chart should be monitored for any changes in the previous few hours.

Postural drainage is given to facilitate the drainage of secretions in gravity-assisted positions. Commonly, the side-lying position is used with the affected lung on top. Percussion is applied by rhythmical striking action applied to the chest wall with a full cupped hand or tented fingers. It is applied in the most affected areas first. Endotracheal suctioning is commonly used in mechanically ventilated neonates to remove secretions and prevent atelectasis by improving oxygenation and reducing obstruction.[5] However, more evidence is required to prove the beneficial effects of suctioning. Vibrations are given at a rapid rate with minimum pressure by the fingers of one hand molded to the baby's chest wall contour, with contralateral thumb support. After every treatment session, the vital parameters of the baby are noted and the chest is auscultated.

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