



Beneficial of High Flow Nasal Cannula with Infants

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Abstract:

This research paper aims at exploring the benefits of high flow nasal cannula. The research investigates different research articles and analyzes the data to meet the objectives of this research paper. The cannula is considered a basic and most important intensive care device. The use of high flow nasal cannula is very much common for children, especially infants. Studies show that HFNC can be used for moderate to severe bronchitis upon the initial flow of oxygen. From different papers, it has been concluded this method despite the limited availability of data on this area, is useful for treating respiratory disorders in infants.

Key words: Bronchitis, HFNC, infants, review.

1. Introduction:

Oxygenation has been widely used for treating a variety of respiratory disorders and conditions in both adults and infants. The reason for its wide adoption is that its application is very simple to use, effective, and offers safety. The cannula is considered a basic and most important intensive care device. The use of high flow nasal cannula is very much common for children, especially infants. Studies show that HFNC can be used for moderate to severe bronchitis upon the initial flow of oxygen. In children, the levels of flow adjustment are extremely crucial concerning complications and maximal efficacy. It is also considered an alternative to continuous positive airway pressure. HFNC is heat adjustable, and as mentioned already it can be used for infants as well (Ji-Won Kwon, 2020). This research paper aims at exploring the benefits of high flow nasal cannula, and how it is being done. It is extremely crucial to understand.

2. Data Collection:

Research Methodology:

For this specific research study, a total of 5 to 6 research articles were reviewed. The purpose of the study is to highlight the benefits of HFNC in detail by reviewing different research articles. In addition to these articles, some other articles were also used for the study with proper referencing for support. The articles were selected by reading titles and abstracts. The articles are selected and analyzed to find the relevant data.

Ethical Considerations:

All ethical considerations are well-considered in this research paper. No laws are being violated because all research articles are properly cited and references are given at the end of the research paper to avoid plagiarism and to stay true to the research.

3. Research Findings:

In this section, we will be reviewing the articles that we have selected which emphasize the benefits of the high-flow nasal cannula with infants and how it is being done. Acute viral bronchitis is one of the leading causes of acute respiratory failure or disease in infants in developed countries. It is stated by both the American Academy of Pediatrics and related UK guidelines that the treatment of acute bronchitis is supportive and it also includes monitoring, it further includes low flow oxygen therapy, and hydration or nutritional support. Over the past few decades, the high-flow nasal cannula has emerged as one of the most promising methods to treat and provide respiratory support in infants suffering from severe bronchitis either during interhospital or in the pediatric intensive care unit. It is said that oxygen delivery with high flow nasal cannula allows for the administration of a heated and humidified blend of air and oxygen at various different levels of flow rate that can be matched with patients' respiratory flow. This research was conducted to see the result of HFNC on patients' respiratory systems and the rate of failure was 14% out of 133 patients in the study group (Durand, Guiddir, & Kyheng, 2020).

Respiratory support is provided to an infant for the treatment of respiratory failure in infants. It is important to know what basically bronchitis is. Bronchitis is a lower respiratory tract infection that is caused by none other than the respiratory syncytial Virus that can be extremely sworn. Hospitalization is needed in many cases. Bronchitis can be diagnosed in adults and elderly people but infants are the people that are mostly affected by this virus which can cause that in some cases. To prevent the failure of bronchitis in infants, many treatments and therapies are being suggested by doctors and researchers. However, high flow nasal cannula is highly suggested by both American and British societies for successful treatment in infants. Children with severe disease were intubated with invasive mechanical ventilation which was rather a harsh way of treating respiratory disease. Along

with that the method also was quite expensive and it exposed the infants to potentially toxic chemicals and medications (Fainardi, Abelli, Muscarà, & Pisi, 2021).

The high-flow nasal cannula system has consisted of a flow generator which is an oxygen blender that works to provide a flow of gas containing oxygen from 21 two 100% up to 60 liters per minute. For this purpose, the gas is heated and then it is humidified with the help of an active heated humidifier and then it is delivered through a heated tube. The circuit is connected to a silicone nozzle canola of different sizes so that it can fit into the nostrils of the infant. It is extremely important to know that the flow of gas and fraction of inspired oxygen along with temperature can be controlled or regulated depending on the needs of the patient. It is proved from the study that mechanisms can help in improving respiratory functions which were not previously treated or defined. This can also help in improving the oxygenation related to acute lung or any day from injury in both adults and infants. However, despite its widespread use for treating different respiratory malfunctioning in infants, this method is not recommended by some of the researchers for infants. Doctors say that there is still a need to research this topic to clarify and define the benefits of this mechanism, especially for infants (Heikkil, Paula, & Mecklin, 2018).

The actual concept of high-flow oxygen starts in the new Natal intensive care unit as an alternative method. Much of the research that has been conducted on this topic has

Focused their interest on HFNC as a respiratory method during post-extubation in infants. However, it is highlighted again and again that there is a limitation in this area because there is limited availability of data on this topic. There is still a need of conducted high- quality research on this topic so that this method can be used without any stress for treating children and infants (Lee, Rehder, Williford, Cheifetz, & Turner, 2013).

Conclusion and Result:

From the findings, it can be said that HFNC is a widely used method for treating bronchitis in infants. From the analysis, it is obvious that the American Academy of Paediatrics and associated UK recommendations both suggest that supportive care, which also involves monitoring, low-flow oxygen therapy, and hydration or nutritional assistance, is the best way to treat acute bronchitis. The high flow nasal cannula has become one of the most promising methods to treat and give respiratory support to new-borns suffering from acute bronchitis, either during interhospital or in the paediatric intensive care unit, throughout the past few decades. Numerous treatments and therapies are being proposed by doctors and researchers to stop baby bronchitis from failing. However, both American and British organizations strongly advise high flow nasal cannula for a successful course of treatment in new-borns. Children would insist that respiratory diseases were intubated with invasive mechanical ventilation, which was a somewhat severe method of treatment. Additionally, the approach exposed the children to potentially hazardous chemicals and medications, and it was highly expensive. In this

regard, HFNC is a better and easy way for treating different respiratory conditions.

Limitation:

There were no limitations in this research as the existing literature on this topic was reviewed

References:

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