ISSN No:-2456-2165

Omissions in Nursing Care in Pediatric Patients with Mechanical Ventilation

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Abstract:- Nursing care in mechanically ventilated (MV) neonatal patients are essential to prevent complications. However, omissions in the application of this type of care have been documented. This study is an exploratory, observational, non-experimental, descriptive and transversal, which investigates the application of pediatric nursing care to patients with MV. The sample consisted of 15 nurses from the neonatal intensive care service. The results reveal the constant practice of some cares (monitoring of oxygen saturation, temperature, and pigmentation), but the partial or total omission of others (arterial gas monitoring, sedation, and others). In conclusion that simple cares are the most performed, while those that require more time or material are less realized. Research into the causes of these omissions is necessary.

Keywords:- *Nursing Omissions, Nursing Care, Pediatric Nursing, Mechanic Ventilation.*

I. INTRODUCTION

Neonates can present a variety of physiological complications and pathologies associated with immaturity in development and caused by external pathogens. One of the vulnerable physiological aspects in these neonates is lung maturity, because it is a system of late intrauterine development. In turn, a frequent medical procedure in neonates with respiratory problems is mechanical ventilation (MV).

The MV is an invasive medical procedure of life support, needing endotracheal intubation (AEP, 2012). The main cause of practicing a MV in neonates are infections; other causes are hyaline membrane disease and neuropathologies; being more common in low-pass newborns (less than 2500 grams) and premature (Pérez et al., 2016).

This support technique is associated with pulmonary complications, due to its invasive nature. The most common associated pulmonary complications to MV are atelectasis, pneumonia, pneumothorax, and bronchopulmonary dysplasia (Torres-Castro et al., 2016).

Prevention of the above complications is effective when VM are made with care measures, that in the neonate are more rigorous, because the fragility of newborn physiology, being more complex in case of low weight or prematurity.

So then, cares associated with MV includes health care of the endotracheal cannula; hemoglobin, blood oxygen saturation, arterial gases, temperature, and balance of liquids evaluation; prone position; the use of bronchodilators, corticosteroids, and diuretics; in addition to oral aspiration and constant monitoring of MV functionality (Bonillo et al., 2003).

The use of these measures reduces the chances of complications during intubation, as well as subsequent complications, including airway obstruction and atelectasis (AEP, 2012).

Survival of intubated neonates is 78.9% when they have a normal weight, in contrast with the 66.2% of survival in those with low weight (Soto et al., 2013). This exposes the importance of well-made and constant nursing care during MV.

The study of Raurell (2011), reports that MV-related complications decrease from 6.01 to 1.91 with the training of staff in care of patients, this in adults. The reduction of incidence of complications by MV is also observed in pediatric patients; another study, in neonatal patients a rate of decrease of 0.7% was observed after performing nursing care correctly (Fortini y Frydman, 2016).

Apart from the correct performance of preventive care, the dynamics and spatial arrangement of health centers must be favorable. The study led by Jung (2020) highlights the importance of the proximity between nursing centers and beds with MV-patients, which reduces mortality rates. On the other hand, the study of Blackbwood and team (2013), refers that the correct assignment of roles and strict following in these, improves the status of children connected to MV.

Other studies also support the importance of nursing care in MV cases (Foronda et al., 2011; Pedreira et al., 2009 y Splaingard et al., 1983). However, there are several studies that show the incorrect application of these in the Neonatal Intensive Care Unit (UCIN).

ISSN No:-2456-2165

About that, the rate of omissions in general nursing care is 44% in the United States; being the most common causes of these omissions, the availability of supplies and communication between nurses, by 85% and 38% respectively (Kalisch et al., 2009 y Ogboenyiya et al., 2020). The results are similar in Latin American countries, where the greatest omission of nursing focuses on preventive care actions and in administrative activities (Carvalho et al., 2020).

The importance of understanding omissions in the care of MV-patients is evident, generating the motivation of this work and encouraging research in this area.

II. METHODS

The methodology used in this work was developed in an exploratory, observational, non-experimental, descriptive, and transversal way. The data were obtained through a questionnaire applied to a group of 15 nurses of the neonatal intensive care unit (NICU) of the Dr. Rafael Pascasio Gamboa Hospital in Tuxtla Gutierrez, Chiapas, México. The instrument is a questionnaire about the practice of pediatric patient care with MV. The instrument was applied at the 68.28% of the nurses in service on the NICU; the rest of the nurses in service were not interviewed due to absence from work due to permissions or vacation.

The test applied allowed to collect sociodemographic information from the sample, as well as the frequency of application of regulatory and suggested care in neonatal MV-patients, by reference of active nurses.

III. DISSCUTION

General data. The 93.33% of the sample was made up of women and 6.67% of men. Of the total number of nurses, 93.33% had a bachelor's degree in nursing, while the remaining percentage had a technical career in nursing. The 66.7% of the sample had between 7 and 10 years of service, 20% from 4 to 6 years, and 13.33% more than 10 years of service.

Sedation. The 46.67% of the sample stated that adequate sedation was always maintained in pediatric patients with MV, likewise, 46.67% reported monitoring sedation on some occasions and 6.67% said that they did not perform this care on neonates with MV.

Fixation, permeability of pathways areas and aspiration of secretions. The 66.67% of the sample reported performing these care measures on neonatal patients with MV, 13.33% said they do it "sometimes", and no participant expressed non-performance of these actions.

However, the total sample mentions knowing the appropriate technique for oral aspiration for intubated neonates.

Measurement of the endotracheal cannula. The 93.33% of nurses use the appropriate cannula measure for the neonatal patient with MV, while 6.67% mentioned that they only use the right one on some occasions. No percentage of the sample ever mentioned never using the right one.

Arterial gas monitoring. 20% of the sample stated that it always performs a correct monitoring of arterial gases, 40% mention that they do not perform this care and 40% mention that they do it on some occasions.

Liquid balance. The 73.33% of the sample of nurses considers that strict fluid balance is a primary care in the neonate with MV, while 26.67% consider it not essential.

Oxygen saturation and temperature monitoring. The total sample mentions that it performs constant monitoring of oxygen saturation and temperature levels in neonatal patients with VM.

Skin coloring monitoring. The total of the sample mentions that they perform the check of the skin coloration always, to neonatal patients with MV.

Mechanical fan functionality. 93.33% of the sample mentions that they always realize that the mechanical fan is working well, while 6.67% mention that they notice sometimes. No individual in the sample mentions not noticing the functionality of the fan.

IV. CONCLUSION

The importance of preventive care about complications in pediatric patients with MV is evident, since it allows to reduce in relevant percentages the mortality and morbidity of these patients.

As mentioned in the introduction to this article, there is evidence of the omissions of this care by the nursing staff, for different reasons ranging from the workload to the material available in the medical units.

In the case of nurses active in the NICU of the Dr. Rafael Pascasio Gamboa hospital in Chiapas, Mexico, partial omissions were also found in several care actions, even total omissions were found by a part of the staff.

At first, highlights the degree of absenteeism of contracted staff, because it was only possible to collect the information of 68.28% of the nurses hired for the NICU service. Absenteeism from work in nursing has been documented in other studies (Arévalo, 2019; Díaz et al., 2018; Hernández-Cantú y Medina-Campos, 2020 y Rojas-Pimentel y Izaguirre-Torres, 2020), being the cause of some problems of praxis.

In most recommended cares, except for monitoring of oxygen saturation, temperature, and skin coloring, total or partial omissions were observed. It is more frequent that omissions are partial, in other words, these cares are carried out only occasionally.

Proper sedation in MV-patients is cared in a low percentage, under appropriate conditions, nursing staff should ensure that the level of sedation is the recommended by medical staff. However, the sample performs this control on some occasions or even omits this care.

Another care weakly applied is the monitoring of arterial gases, being covered in its entirety by only 20% of the sample. We found no other research data addressing this practice, but some texts emphasize its importance (García-Prieto et al., 2014; López-Herce y Carrillo, 2008).

According to the results of this research, the most routine and simple care, like monitoring vital signs and skin coloration, are the most accomplished. This can be understood by the facility of the actions, as well as simple instruments or none are required for the task. On the other hand, more complex cares are performed to a lesser extent, reaching its omission.

The level of studies of the sample, as well as the fact that the total sample mentions knowing the appropriate suction techniques, provides evidence that the origin of the omissions may lie in other causes than staff training.

Other authors ideas can be taken, since they point out that the origin of omissions in nursing may be due to the deficit of work materials (Berón y Palma, 2011), as well as burnout syndrome (Abarca, 2018 y Fuentelsaz-Gallego et al., 2013) and relational aspects between the work team (Bellido, 2017 y Solís, 2021).

It is important to conduct research that delves into the causes of omissions, allowing an approach to the solution. This is because the problem of omission in nursing care impact on the health of neonates with MV and in general.

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