CHARACTERIZATION OF PARAMETERS AND STRATEGIES USED BY PHYSICAL THERAPISTS IN DIFFICULT MECHANICAL VENTILATION WEANING

Caracterização de parâmetros e estratégias do desmame difícil da ventilação mecânica adotados por fisioterapeutas

Descripción de los parámetros y estrategias de destete difícil de la ventilación mecánica utilizados por fisioterapeutas

ABSTRACT

Objective: To characterize the main strategies and parameters used by physical therapists in difficult mechanical ventilation weaning. Methods: Cross-sectional study including all the physical therapists working in adult Intensive Care Units in three public hospitals in Fortaleza-CE. A questionnaire with closed questions related to difficult mechanical ventilation weaning was applied, with either one or multiple answers. The data was treated with descriptive and non-parametric analysis. Results: Among the parameters mostly used by the 56 interviewed physical therapists for the difficult weaning, were found: current volume reduction (26 - 46.4%) and desaturation during aspiration (17 - 30.4%). It was observed that 38 (67.9%) alternate T-tube and continuous positive airway pressure (CPAP) as strategies for difficult weaning, and 28 (50%) reported reducing the pressure support. There was no statistical difference between the strategies used in the studied hospitals, neither correlation between strategies and parameters. Conclusion: It was found that physical therapists have been performing similar strategies, which are also shown in the literature, but this is not the case with the parameters. The parameters used are not supported by the literature.

Descriptors: Diaphragm; Muscle Fatigue; Physical Therapy; Muscle Strength; Intensive Care Units; Respiration; Artificial.

RESUMO

Objetivos: Caracterizar as principais estratégias e parâmetros adotados por fisioterapeutas no desmame difícil da ventilação mecânica. Métodos: Estudo transversal incluindo todos os fisioterapeutas que atuavam nas Unidades de Terapia Intensiva adulto em três hospitais públicos da cidade de Fortaleza-CE. Utilizou-se um questionário com perguntas objetivas, relacionadas ao desmame difícil da ventilação mecânica, havendo itens com possibilidade de respostas múltiplas. Os dados foram tratados de forma descritiva e não paramétrica. Resultados: Dentre os principais parâmetros adotados para o desmame difícil pelos 56 fisioterapeutas entrevistados, encontrou-se: redução do volume corrente (26 - 46,4%) e dessaturação durante aspiração (17 - 30,4%). Observou-se que 38 (67,9%) afirmam intercalar pressão positiva contínua em vias aérea (CPAP) e tubo T como estratégia adotada no desmame difícil, e 28 (50%) responderam redução da pressão de suporte. Não houve significância estatística entre as estratégias adotadas nos hospitais estudados, assim como na correlação entre estratégias e parâmetros. Conclusão: Constatou-se que os fisioterapeutas têm realizado estratégias semelhantes entre si e correspondentes à literatura, mas não em relação aos parâmetros. Os parâmetros adotados não corroboram com os descritos pelos estudos científicos.

Descritores: Diafragma; Fadiga Muscular; Fisioterapia; Força Muscular; Unidade de Terapia Intensiva; Ventilação Mecânica.
INTRODUCCIÓN

El objetivo para la ventilación mecánica es prolongar la vida del paciente, pero puede resultar en fallas en el desmame de la ventilación mecánica(3,4). Cuando la ventilación mecánica está por finalizar, es importante determinar si la ventilación puede ser retirada. Si la retirada se realiza correctamente, puede mejorar la función pulmonar del paciente. Sin embargo, si la retirada no es exitosa, puede exponer al paciente a riesgos como la reintubación y la parada respiratoria. Por lo tanto, es crucial evaluar y planificar el desmame de la ventilación mecánica de forma efectiva.

MÉTODOS

En este estudio, se realizaron dos encuestas a fisioterapeutas en el servicio de cuidados intensivos de adultos de tres hospitales públicos de la ciudad de Fortaleza-CE en 2010. Se incluyeron todos los fisioterapeutas que actúan en las Unidades de Cuidados Intensivos. Se utilizó un cuestionario con preguntas objetivas relacionadas con el desmame difícil de la ventilación mecánica, habiendo ítems con posibilidad de respuestas múltiples. Los datos fueron tratados de forma descriptiva y no paramétrica.

RESULTADOS: Las principales estrategias adoptadas para el desmame difícil por los 56 fisioterapeutas entrevistados se observó: reducción del volumen corriente (26 - 46,4%) y desaturación durante la aspiración (17 - 30,4%). Se observó que 38 (67,9%) afirmaron intercalar presión positiva continua en las vías aéreas (CPAP) y tubo T como estrategia adoptada en el desmame difícil, y 28 (50%) respondieron a una reducción de la presión de soporte. No hubo diferencias estadísticamente significativas entre las estrategias adoptadas en los hospitales estudiados, así como en la correlación entre estrategias y parámetros. Conclusión: Se constató que los fisioterapeutas realizan estrategias semejantes entre sí y correspondientes a la literatura, pero no en relación a los parámetros. Los parámetros adoptados no confirman los descritos por los estudios científicos.

Descriptores: Diáfragma; Fatiga Muscular; Fisioterapia; Fuerza Muscular; Unidad de Cuidados Intensivos; Respiración Artificial
the value of statistical significance $p \leq 0.05$, and data was represented in figures.

This research was approved by the Comitê de Ética em Pesquisa do Hospital Geral Dr. César Cals (Research Ethics Committee of the General Hospital Dr. César Cals), under the protocol number 355/09, and followed the ethical recommendations of the Resolução 196/96 do Conselho Nacional de Saúde (Resolution 196/96 of the National Health Council), which establishes the principles for research with human beings(8).

**RESULTS**

Of the 63 physical therapists, 56 completed the questionnaire, since 02 professionals refused to answer and 05 were absent by the time of data collection.

Regarding the concept of DW, most physical therapists (44 - 78%) related it to the failure in MV withdrawal soon after 3 attempts in a week, while 12 (22%) related it to the failure in removing the MV after more than 3 attempts within a week. Regarding the identification of the patient
in DW, 55 (98.2%) practitioners showed to be able to verify it. This result was significant (p<0.05), demonstrating their ability to identify patients who are in DW.

Among the parameters adopted to identify a patient in DW, the most related ones were the reduction of the current volume (26 - 46.4%) and desaturation during aspiration (17 - 30.4%). It is worth noting that, besides these parameters, others were chosen by some physiotherapists (23 - 41.1%), such as Tobin index, increased respiratory rate, and decreased muscle strength (Figure 1).

When asked about the evaluation of muscle strength during weaning from MV and muscular training in DW cases, the majority of the professionals, 45 (80.4%) and 48 (85.7%), respectively, stated to perform them, showing statistical significance (p <0.05).

Among the strategies employed by the physical therapists, these were highlighted: alternating CPAP X Tube T (38 - 67.9%), reduction of pressure support (28-50%) and use of the T tube in continuous nebulization (26 - 46.4%). These results were pointed out by the physical therapists as options, either alone or associated with one or more strategies (Figure 2). There was no significant difference between the strategies employed by the physical therapists in the public hospitals studied (p=0.08).

DISCUSSION

The results related to the concept and characterization of DW found in this study corroborate other work(2). Studies(9,10) show that DW can be defined as a failure in three attempts of weaning from mechanical ventilation in a week. After that, patients cannot manage to breathe spontaneously, having a failure as result. Hence the importance of the physical therapists’ ability to identify when the patient is in DW, so that they can take measures to facilitate the process of weaning from mechanical ventilation as soon as possible(2).

Other parameters, such as the reduction in tidal volume and desaturation during aspiration, mentioned by some physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic physical therapists in this study, are not related by other researchers(11), who actually mentioned hemodynamic

The correlation between parameters and strategies observed in the present study did not show significance (p=0.061), what may be related to the professionals who don’t follow a pattern in DW.

CONCLUSION

The purpose of this study was to characterize the strategies and parameters currently used in difficult weaning in three referral public hospitals. The initial hypothesis was that there would be a significant association between parameters and strategies employed by the physical therapists. It was observed that the parameters mentioned by these professionals in DW are not compatible with the specific literature. However, the strategies were shown to be similar, without significant correlation with the parameters used, demonstrating a lack of standardization of these criteria.

It is necessary to conduct further studies that include an extension of the scientific object studied, in order to establish a better standardization of parameters and strategies on DW.

REFERENCES

Difficult weaning by physical therapists


Correspondent’s adresse:
Fabiola Maria Sabino Meireles
Avenida João Pessoa, 5819/304, Bloco A8
Bairro: Damas
CEP: 60425-682 - Fortaleza - CE - Brasil
E-mail: fabiolameireles@yahoo.com.br