

57 - PREDICTIVE INDEX SUCCESS IN WEANING FROM MECHANICAL VENTILATION IN THE HOSPITAL SAN LUCAS FAG

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INTRODUCTION

A routine frequent in intensive care units is the transition from artificial to spontaneous breathing, this transition is called the weaning from mechanical ventilation, which can result in success or failure. Weaning can be done in a gradual or abrupt with the intent to remove the patient from artificial ventilation and keep the same only in spontaneous ventilation.

Ventilatory support should be withdrawn so that the patient has physiological conditions. On the other hand, it is important to remember that early weaning can lead to complications, such as those arising from problems of re-establishment of artificial airway and worsening gas exchange. (YAMAUCHI, 2005).

For Ely (2001), besides the right time to the beginning, the choice of weaning method also influences the success or failure of extubation as well as morbidity and mortality of patients extubated.

The multidisciplinary team of an intensive care unit (ICU) should strive, however, succeed in weaning, thus avoiding damage to both the patient and for the hospital and also for the team itself (Azeredo, 2002).

The physiotherapist has an important role in the conduct of weaning protocols and screening of patients (ELY et al, 2001). Ely et al (1996) demonstrated that the daily assessment of respiratory capacity in MV patients by physical therapist (intervention group) decreased the time of the VM in 1.5 days and reduced the morbidity of patients. The mean duration of MV in the intervention group was 4.5 days and the control group was 6 days.

We define success in weaning the maintenance of spontaneous breathing for at least 48 hours after discontinuation of artificial ventilation. It is considered failure or failure of weaning, if the return to ventilation is required during this period. (III Brazilian Consensus on Ventilator, 2007).

For weaning from mechanical ventilation to be successful must not only pay attention to a single variable but you should be sticking to a set of variables according to the literature are important to the process of weaning. Moreover, it takes a team prepared, all professionals not only have the same goal, but also follow the same path to find it.

Among the many variables during the weaning process and are directly related to success or failure are: Glasgow Coma Scale, Index of Tobin, Respiratory muscles and Value PaO₂/FiO₂. For this let us understand each one.

The Glasgow Coma Scale to objectively assess the level of consciousness of the patient, using three parameters: eye opening, best verbal response and best motor response. The result is the sum of the scores of the three categories, with the normal value is 15.

The index is obtained by Tobin's relationship with respiratory rate and tidal volume indicates the degree of patient dependency on mechanical ventilation, its normal value is <105.

By measuring the Respiratory muscles to assess inspiratory muscle strength, which has the normal 100 to 150 cmH₂O.

And finally, the relationship that characterizes PaO₂/FiO₂ acute respiratory distress syndrome, with normal value of 400mmHg.

This study aims to evaluate the success and failure of weaning from mechanical ventilation in ICU patients of São Lucas Hospital FAG, analyzing the pre extubation following clinical variables: Glasgow Coma Scale, Tobin index, maximal inspiratory pressure ratio and PaO₂/FiO₂.

MATERIALS AND METHODS

Descriptive study performed in a transverse way. After evaluation and approval of the ethics committee of the IES, the data were collected from seven patients admitted to the ICU of St. Luke's Hospital FAG, where those responsible for even signed a consent form and then applied the appropriate statistical analysis, through to calculate the average and standard deviation of each variable.

To conduct the study were collected and analyzed the Glasgow Coma Scale, Tobin index, maximal respiratory pressures through manovacuometry: Maximal inspiratory pressure (MIP), and finally, when PaO₂/FiO₂ Value prior to extubation the patient.

The normal values for the above parameters collected at the time of weaning and extubation are pre: Glasgow 15, Tobin index <105, MIP 100 to 150 cmH₂O, PaO₂/FiO₂ 400mmHg. It is considered successful weaning and extubation failure to return to a mechanical ventilation longer than 48 hours after stopping and is considered unsuccessful when the return is required for mechanical ventilation during this period.

Data collection was performed using a previously established table and his academic advisor, this table was attached to the records of each patient who was in weaning from mechanical ventilation.

The study included patients admitted to St. Luke's Hospital and FAG were used in weaning from mechanical ventilation, and we excluded patients who were not in weaning from mechanical ventilation, or less than 24 hours of ventilation or failures that occurred data collection.

RESULTS AND DISCUSSION

Pinheiro et al (2000), MacIntyre et al (2001) and Azeredo (2002) agree that beyond the resolution of the acute phase of disease, the criteria used in studies to identify patients suitable weaning can be summarized as: adequate oxygen partial pressure oxygen (PaO₂) 60 mmHg, fraction of inspired oxygen (FiO₂) 0.4, positive end expiratory pressure (PEEP) 5cmH₂O and PaO₂/FiO₂ 150-300, cardiovascular stability, absence of fever, absence of significant respiratory acidosis, hemoglobin (Hb) adequate (Hb 8-10g/dl), appropriate state of consciousness (Glasgow 13, without use of sedation continues), metabolic stability.

Other parameters are also relevant in the weaning process, they are: oxygen saturation (SpO₂) > 90%, pulmonary

compliance > 33 ml/cmH₂O, maximal inspiratory pressure (MIP) < 30 cmH₂O, respiratory rate (RR) between 35 - 38 bpm, minute volume (VE) between 10-12 liters, tidal volume (CV) greater than 300 ml or larger than 5 ml / kg, Tobin index < 105, and Nemer index > 25 (Azeredo, 2002).

In this study we evaluated seven patients being weaned in the ICU of St. Luke's Hospital FAG, which we found a mean Glasgow Coma Scale 11.5 ± 2.43, the average Tobin index was 65 ± 31.2, already Respiratory muscles showed a mean of 28.5 ± 13.17 cm/H₂O, and finally the ratio obtained by PaO₂/FiO₂ mean 331.92 ± 115.14. (Table 1)

Tabela 1 Índices e parâmetros analisados

	Média	Desvio Padrão
Glasgow	11,50	2,43
Índice de Tobin	65,00	31,20
Manovacuometria	28,50	13,17
PaO ₂ /FiO ₂	331,92	115,15
<i>Fonte: Da autora</i>		

Yang and Tobin agreed with the II Brazilian Consensus Conference on mechanical ventilation, to say that in Intensive Care Units MIP has been shown as a predictive index of success in weaning from mechanical ventilation.

Sahn and Lakshminarayan showed that patients can generate pressures greater than -30 cmH₂O succeeded in weaning from invasive mechanical ventilation and those unable to generate a pressure of at least - 20 cmH₂O did not succeed in weaning. Our study has bought what these authors said, because the values observed among the patients experienced at least - 20 cmH₂O.

Another factor, rated by Namen et al. (2001), was the state of consciousness by Glasgow Coma Scale. According to the authors, the multivariate logistic regression identified that the success rate increased by 30% for each increase of one unit on the Glasgow scale.

Patients with a score 8 had a success rate of weaning 75%, and patients with score 7 had a success rate of 36%. In this study, patients had a score with a minimum of nine and maximum of 15, which made us agree with the author.

The Index of Tobin noted that the sample collected the value ranged from 32 to 120, which in this study, we saw that patients were successful in weaning from mechanical ventilation. According to Gonçalves (1991), values equal to or less than 106 are predictive of successful weaning.

For Emmerich (1996) PaO₂/FiO₂ is routinely used at our institution in post-cardiac surgery as a parameter for weaning, and you can use it regardless of the patient's clinical condition, although cardiovascular changes may influence the content of venous oxygen and cardiac output. In our study we observed that patients showed different values, but still all had success in the weaning process.

FINAL CONSIDERATIONS

With the results we observed that there was success in weaning patients from St. Luke's Hospital FAG according to the parameters, but suggest a further study with a larger sample of patients.

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PREDICTIVE INDEX SUCCESS IN WEANING FROM MECHANICAL VENTILATION IN THE HOSPITAL SAN LUCAS FAG

ABSTRACT

Introduction: A routine frequent in intensive care units is the transition from artificial to spontaneous breathing, this transition is called the weaning from mechanical ventilation, which can result in success or failure. Weaning can be done in a gradual or abrupt with the intent to remove the patient from artificial ventilation and keep the same only in spontaneous ventilation. The physiotherapist has an important role in the conduct of weaning protocols and triage of patients. Objective: Evaluate the success and failure of weaning from mechanical ventilation in ICU patients of São Lucas Hospital FAG. Methodology: Descriptive study performed in a transverse way. After evaluation and approval of the ethics committee of the FAG, data were collected from seven patients admitted to hospital and later St. Luke FAG applied adequate statistical analysis. To conduct the study analyzed the Glasgow Coma Scale, Tobin index, maximal respiratory pressures through manovacuometry: Maximal inspiratory pressure (MIP), and finally, at the time prior PaO₂/FiO₂ Value of extubation. The study included patients admitted to St. Luke's Hospital and FAG were used in weaning from mechanical ventilation, and we excluded patients who were not in weaning from mechanical ventilation, or less than 24 hours of ventilation or failures that occurred data collection. Results: There were 7 patients being weaned in the ICU of St. Luke's Hospital FAG, which we found a mean Glasgow Coma Scale 11.5 ± 2.43 , the average Tobin index was 65 ± 31.2 , already Respiratory muscles showed a mean of 28.5 ± 13.17 , and finally the ratio obtained by PaO₂/FiO₂ mean 331.92 ± 115.14 . Results: We evaluated 7 patients being weaned in the ICU of St. Luke's Hospital FAG, which we found a mean Glasgow Coma Scale 11.5 ± 2.43 , the average Tobin index was 65 ± 31.2 , since the pressure Respiratory muscles had a mean of 28.5 ± 13.17 , and finally the ratio obtained by PaO₂/FiO₂ mean 331.92 ± 115.14 . Conclusion: With the results we observed that there was success in weaning patients from St. Luke's Hospital FAG according to the parameters, but suggest a further study with a larger sample of patients.

KEYWORDS: Weaning from mechanical ventilation, Mechanical Ventilation, Physiothérapie

SUCCESS INDEX PRÉDICTIF DE SEVRAGE DE VENTILATION MÉCANIQUE DANS LE FAG HÔPITAL SAN

LUCAS

RÉSUMÉ

Introduction : Une routine fréquentes en réanimation est la transition de l'artificiel de la respiration spontanée, cette transition est appelée le sevrage de la ventilation mécanique, ce qui peut entraîner le succès ou l'échec. Le sevrage peut se faire de manière graduelle ou brusque avec l'intention de retirer le patient de la ventilation artificielle et de garder les mêmes que dans la ventilation spontanée. Le physiothérapeute a un rôle important dans la conduite du sevrage et de protocoles de triage des patients. Objectif : Évaluer la réussite et l'échec du sevrage de la ventilation mécanique chez les patients aux soins intensifs de l'Hôpital São Lucas FAG. Méthodologie : Etude descriptive effectuée d'une manière transversale. Après évaluation et approbation du comité d'éthique de la FAG, les données ont été recueillies auprès de sept patients admis à l'hôpital et, plus tard Saint-Luc FAG appliqué analyse statistique adéquate. Pour mener l'étude a analysé l'échelle de Glasgow, l'indice de Tobin, pressions maximale des voies respiratoires par manovacuometry: pression inspiratoire maximale (MIP), et enfin, au moment antérieur Valeur PaO₂/FiO₂ de l'extubation. L'étude incluait des patients admis à l'hôpital Saint-Luc et FAG ont été utilisés dans le sevrage de la ventilation mécanique, et nous avons exclu les patients qui n'étaient pas dans le sevrage de la ventilation mécanique, soit moins de 24 heures de ventilation ou de défaillances qui ont eu lieu collecte de données. Résultats : Nous avons évalué 7 patients en cours de sevrage dans le service de réanimation du St. Luke's Hospital FAG, que nous avons trouvé une moyenne échelle de Glasgow de $11,5 \pm 2,43$, l'indice moyen Tobin était de $65 \pm 31,2$, car la pression Les muscles respiratoires ont une moyenne de $28,5 \pm 13,17$, et enfin le ratio obtenu en moyenne $331,92 \pm PaO_2/FiO_2 115,14$. Conclusion : Avec les résultats, nous avons observé qu'il y avait de succès dans le sevrage des patients de l'hôpital St. Luke FAG en fonction des paramètres, mais suggèrent une autre étude avec un échantillon plus important de patients.

MOTS-CLÉS : Le sevrage de la ventilation mécanique, Ventilation mécanique, Physiothérapie

ÉXITO EN PREDICTIVO ÍNDICE DE DESTETE DE LA VENTILACIÓN MECÁNICA EN EL HOSPITAL SÃO LUCAS

FAG

RESUMEN

Introducción: Una rutina frecuente en unidades de cuidados intensivos es la transición de artificial para la respiración espontánea, esta transición se denomina el destete de la ventilación mecánica, lo cual puede resultar en el éxito o el fracaso. El destete se puede hacer de una forma gradual o abrupta con la intención de sacar al paciente de la ventilación artificial y mantener la misma sólo en ventilación espontánea. El fisioterapeuta tiene un papel importante en la realización de protocolos de destete y triaje de los pacientes. Objetivo: Evaluar el éxito y el fracaso del destete de la ventilación mecánica en pacientes de la UCI del Hospital São Lucas FAG. Metodología: Estudio descriptivo realizado de una manera transversal. Después de la evaluación y aprobación del comité de ética de la FAG, los datos fueron recolectados en siete pacientes ingresados en el hospital y más tarde San Lucas FAG aplica análisis estadístico adecuado. Para realizar el estudio se analizó la Escala de Coma de Glasgow, el índice de Tobin, a través de las presiones respiratorias máximas manovacuometry: presión inspiratoria máxima (PIM), y, por último, en el momento de valor antes de la extubación PaO₂/FiO₂. El estudio incluyó a pacientes ingresados en el Hospital St. Luke y FAG se utilizaron en el destete de la ventilación mecánica, y se excluyeron los pacientes que no estaban en el destete de la ventilación mecánica, o menos de 24 horas de ventilación o fallos que se produjeron recopilación de datos. Resultados: Se evaluaron 7 pacientes en período de destete en la UCI del Hospital São Lucas FAG, que se encontró una media de Glasgow Coma Scale 11.5 ± 2.43 , la media de índice de Tobin fue de 65 ± 31.2 , puesto que la presión Los músculos respiratorios tuvieron una media de 28.5 ± 13.17 , y finalmente la relación que se obtiene por PaO₂/FiO₂ media 331.92 ± 115.14 . Conclusión: Con los resultados se observó que hubo éxito en pacientes que dejan de St. Luke's Hospital FAG de acuerdo a los parámetros, pero sugiere un nuevo estudio con una muestra mayor de pacientes.

PALABRAS CLAVE: El destete de la ventilación mecánica, Ventilación mecánica, Physiothérapie.

ÍNDICES PREDITIVOS PARA O SUCESSO NO DESMAME DA VENTILAÇÃO MECÂNICA NO HOSPITAL SÃO

LUCAS FAG

RESUMO:

Introdução Uma rotina freqüente em unidades de terapia intensiva é a transição da ventilação artificial para a ventilação espontânea, essa transição recebe o nome de desmame da ventilação mecânica, que pode resultar em sucesso ou insucesso. O desmame pode ser feito de maneira gradual ou abrupta com a intenção de retirar o paciente da ventilação artificial e manter o mesmo apenas em ventilação espontânea. O fisioterapeuta apresenta um papel importante na condução de protocolos de desmame e na triagem dos pacientes. Objetivo: Avaliar o sucesso e insucesso no desmame da ventilação mecânica em pacientes internados na UTI do Hospital São Lucas FAG. Metodologia: Pesquisa de caráter descritivo realizado de maneira transversal. Após avaliação e aprovação do comitê de ética da FAG, os dados foram coletados de sete pacientes internados na UTI do hospital São Lucas FAG e posteriormente aplicado a análise estatística adequada. Para a realização do estudo foram analisados a Escala de Coma de

Glasgow, Índice de Tobin, as pressões máximas respiratórias por meio da manovacuometria: Pressão Inspiratória Máxima (Pimáx), e por fim, a Relação PaO₂/FiO₂ no momento prévio da extubação do paciente. Foram incluídos no estudo pacientes internados no hospital São Lucas FAG e estavam na fase de desmame da ventilação mecânica, sendo excluídos os pacientes que não encontravam-se na fase de desmame da ventilação mecânica, ou período inferior a 24h de ventilação ou que ocorreram falhas na coleta de dados. Resultados: Foram avaliados 7 pacientes em fase de desmame na UTI do Hospital São Lucas FAG, onde observou-se média da Escala de Coma de Glasgow 11,5±2,43, o Índice de Tobin teve média 65±31,2, já a Pressão Inspiratória Máxima apresentou média de 28,5±13,17, e por fim a Relação PaO₂/FiO₂ obteve por média 331,92±115,14. Conclusão: Com os resultados obtidos observamos que houve sucesso no processo de desmame dos pacientes do Hospital São Lucas FAG de acordo com os parâmetros analisados, porém sugerimos um novo estudo com uma amostra maior de pacientes.

PALAVRAS-CHAVE: Desmame da Ventilação Mecânica. Ventilação Mecânica, Fisioterapia.