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ORIGINAL

Evaluation of pain during mobilization and endotracheal aspiration in critical patients☆

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KEYWORDS
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Pain assessment;
Procedural pain;
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Mobilization with turning;
Bispectral index

Abstract
Objectives: (1) To assess the prevalence of pain during nursing care procedures, and (2) to evaluate the usefulness of certain vital signs and the bispectral index (BIS) in detecting pain.
Methods: A prospective, observational analytical study was made of procedures (endotracheal aspiration and mobilization with turning) in critically ill sedated patients on mechanical ventilation. The Behavioral Pain Scale was used to assess pain, with scores of ≥3 indicating pain. Various physiological signs and BIS values were recorded, with changes of >10% being considered clinically relevant.
Results: A total of 146 procedures in 70 patients were analyzed. Pain prevalence during the procedures was 94%. Vital signs and BIS values increased significantly during the procedures

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compared to resting conditions, but only the changes in BIS were considered clinically relevant. In the subgroup of patients receiving preemptive analgesia prior to the procedure, pain decreased significantly compared to the group of patients who received no such analgesia (−2 [IQR: {−5}−0] vs. 3 [IQR: 1−4]; $P < .001$, respectively).
Conclusions: The procedures evaluated in this study are painful. Changes in vital signs are not good indicators of pain. Changes in BIS may provide useful information about pain, but more research is needed. The administration of preemptive analgesia decreases pain during the procedures.

PALABRAS CLAVE
Pacientes críticos;
Dolor;
Dolor procedimientos;
Aspiración endotraqueal;
Movilización con giro;
Índice biespectral

Evaluación del dolor durante la movilización y la aspiración endotraqueal en pacientes críticos

Resumen
Objetivos: 1) Evaluar la prevalencia de dolor durante 2 procedimientos de enfermería, y 2) analizar la utilidad de ciertos signos vitales y del índice biespectral (BIS) para detectar dolor.
Métodos: Estudio prospectivo, observacional y analítico de medidas repetidas en pacientes con ventilación mecánica y sedación. Los procedimientos evaluados fueron la aspiración endotraqueal y la movilización con giro. El dolor se evaluó mediante la Behavioral Pain Scale. Valores ≥ 3 se consideraron dolorosos. Se registraron distintos signos fisiológicos y los valores del BIS. Una variación porcentual > 10% se consideró clínicamente relevante.
Resultados: Se analizaron 146 procedimientos en 70 pacientes. La prevalencia de dolor durante los procedimientos fue del 94%. Los signos vitales y los valores del BIS aumentaron significativamente durante los procedimientos respecto el reposo, pero solo la variación del BIS alcanzó relevancia clínica. En un subgrupo de pacientes que recibieron analgesia preventiva antes de los procedimientos, el dolor disminuyó significativamente respecto a los pacientes que no recibieron analgesia preventiva (−2 [RIQ: {−5}-0] vs. 3 [RIQ: 1−4]; p < 0,001, respectivamente).
Conclusiones: Los procedimientos evaluados son dolorosos. La variación de los signos vitales no es un buen indicador de dolor. La variación del BIS podría ser útil, pero precisa nuevas investigaciones. La administración de analgesia preventiva disminuye la prevalencia de dolor durante los procedimientos.

Introduction

Between 50 and 70% of all patients admitted to the Department of Intensive Care Medicine (DICM) experience pain.[1,2] Furthermore, pain has relevant consequences in the critical patient. Apart from ethical considerations, pain is the most unpleasant memory patients describe upon discharge from the DICM.[3] On the other hand, the presence of pain during admission to the DICM is associated to an increased incidence of chronic pain[4], posttraumatic stress syndrome[5] and, in general, poorer quality of life[6].

Pain may be due to a number of causes, such as the background disease process or monitoring techniques and/or nursing care procedures, which are frequent and unavoidable. Puntillo et al.[7] evaluated the perception of pain in over 6000 conscious critical patients subjected to 6 procedures: mobilization with turning, the placement of central venous catheters, the removal of chest drains, wound cures, endotracheal aspiration, and the removal of femoral arterial catheters. The authors concluded that all these procedures were painful, and that mobilization was the most painful procedure of all.

The main reason for not diagnosing−and therefore not treating−pain is failure to detect the problem.[1,2] Self-evaluation is the best way to assess pain in the conscious patient.[8] However, many patients admitted to the DICM are unable to communicate for different reasons: altered level of consciousness, mechanical ventilation (MV) and/or the use of sedatives or neuromuscular blockers. In these patients, the self-evaluation of pain is not viable, and other instruments must be used. In this regard, a number of validated scales are currently available.[9−14] The systemic use of these scales has been shown to improve pain management, with a lesser need for sedating analgesics, and better clinical outcomes.[15,16] However, in patients subjected to deep sedation or neuromuscular block, pain is not easy to evaluate. The monitoring of different vital signs has therefore been proposed, such as arterial pressure and heart rate (HR), for evaluating pain. The results obtained by the different