



## ORIGINAL

# Impact of harmful use of alcohol on the sedation of critical patients on mechanical ventilation: A multicentre prospective, observational study in 8 Spanish intensive care units



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### KEYWORDS

Harmful use of alcohol;  
Sedation therapeutic failure;  
Difficult sedation;  
Sedative withdrawal;  
Mechanical ventilation

### Abstract

**Purpose:** To evaluate the impact of a history of harmful use of alcohol (HUA) on sedoanalgesia practices and outcomes in patients on mechanical ventilation (MV).

**Methods:** A prospective, observational multicentre study was made of all adults consecutively admitted during 30 days to 8 Spanish ICUs. Patients on MV >24h were followed-up on until discharge from the ICU or death. Data on HUA, smoking, the use of illegal (IP) and medically prescribed psychotropics (MPP), sedoanalgesia practices and their related complications (sedative failure [SF] and sedative withdrawal [SW]), as well as outcome, were prospectively recorded.

**Results:** A total of 23.4% (119/509) of the admitted patients received MV >24h; 68.9% were males; age 57.0 (17.9) years; APACHE II score 18.8 (7.2); with a medical cause of admission in 53.9%. Half of them consumed at least one psychotropic agent (smoking 27.7%, HUA 25.2%; MPP 9.2%; and IP 7.6%). HUA patients more frequently required PS (86.7% vs. 64%;  $p < 0.02$ ) and the use of >2 sedatives (56.7% vs. 28.1%;  $p < 0.02$ ). HUA was associated to an eightfold ( $p < 0.001$ ) and fourfold ( $p < 0.02$ ) increase in SF and SW, respectively. In turn, the duration of MV and the stay in the ICU was increased by 151 h ( $p < 0.02$ ) and 4.4 days ( $p < 0.02$ ), respectively, when compared with the non-HUA group. No differences were found in terms of mortality.

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**PALABRAS CLAVE**

Consumo enólico de riesgo;  
Fracaso terapéutico de la sedación;  
Sedación difícil;  
Privación de la sedación;  
Ventilación mecánica

**Conclusions:** HUA may be associated to a higher risk of SF and WS, and can prolong MV and the duration of stay in the ICU in critical patients. Early identification could allow the implementation of specific sedation strategies aimed at preventing these complications.

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### Impacto del consumo de riesgo de alcohol en la sedación de pacientes críticos en ventilación mecánica: Estudio observacional prospectivo, multicéntrico en 8 unidades de cuidados intensivos (UCI) Españolas

**Resumen**

**Objetivo:** Evaluar el impacto del consumo enólico de riesgo (HUA) en las prácticas de sedoanalgesia y la evolución de pacientes en ventilación mecánica (MV).

**Métodos:** Estudio prospectivo observacional multicéntrico de todos los adultos ingresados consecutivamente durante 30 días en 8 UCIs españolas. Los pacientes en MV >24 h fueron evaluados hasta el alta de UCI o *exitus*. Se registró el HUA, consumo de tabaco, psicótrópos ilegales (IP) o bajo prescripción médica (MPP) las prácticas de sedoanalgesia y sus complicaciones asociadas (Fracaso de Sedación/SF y Síndrome de Privación/SW) así como datos sobre la evolución clínica.

**Resultados:** El 23.4% (119/509) de los ingresados, requirieron VM  $\geq$ 24 h: Varones 68.9%; Edad 57.0 (17.9) años; APACHEII 18.8 (7.2); Ingreso por causa médica 53.9%. La mitad consumían al menos un psicotrópico (tabaco: 27.7%; HUA: 25.2%; PPM: 9.2%; PI: 7.6%). Los pacientes con HUA requirieron más frecuentemente PS (86.7% vs. 64%;  $p < 0.02$ ) y doble sedación (56.7% vs. 28.1%;  $p < 0.02$ ). El HUA se asoció a incidencias 8 ( $p < 0.001$ ) y 4 ( $p < 0.02$ ) veces superiores de SF y SW y prolongó en 151 ( $p < 0.02$ ) horas y 4.4 ( $p < 0.02$ ) días, el tiempo de VM y estancia media en UCI respectivamente respecto al grupo no-HUA. No se encontraron diferencias en la mortalidad.

**Conclusiones:** El HUA podría asociarse a un mayor riesgo de SF y WS y prolongar los tiempos de MV y LOS en los pacientes críticos. Su identificación precoz permitiría implementar estrategias específicas de sedación orientadas a prevenir estas complicaciones.

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**Introduction**

Analgesic and sedative agents are universally used in intensive care unit (ICU) patients<sup>1</sup> as a cornerstone of the strategies applied to provide comfort and safety during their ICU stay by controlling pain and agitation. This is particularly true for patients on mechanical ventilation (MV), where the reduction of the physiological response to stress exerted by sedation and analgesia allows healthcare practitioners to provide adequate patient care while promoting ventilator synchrony. However, sedatives and analgesics are not exempt from complications thus implementation of strategies to maximize their effectiveness and safety has become a priority for scientific societies and experts' committees of sedation and analgesia in ICU patients.<sup>2-4</sup>

Sedative dose requirements are highly variable among ICU patients and particularly influenced by inter and intra-individual differences.<sup>5</sup> Pathophysiology in the critically ill patients and individual specific characteristics such as age, metabolic or genetics, impact the drugs' metabolism and elimination<sup>6,7</sup> and can render unpredictable responses to sedatives even when used at known safe doses.<sup>8</sup>

The difficulty to achieve an adequate level of sedation despite the application of higher doses of sedatives/

analgesics along with agitation upon sedative discontinuation defined as *difficult sedation* (DS),<sup>5</sup> is a common clinical scenario and represents a challenge for the ICU specialists who are frequently forced to increase sedative dose or to add new agents, which may increase the risks of toxicity and related complications. DS in ICU patients is also associated with specific clinical, haemodynamic, endocrine and metabolic responses, which negatively impact on patients' outcome.<sup>8,9</sup>

Certain conditions have been related to sedation complications. Among these, harmful use of alcohol (HUA), reported in about 20–39% of ICU patients,<sup>10,11</sup> and chronic use of psychotropics have been both associated with increased risks of withdrawal syndrome, particularly for patients under prolonged sedation (PS).<sup>12</sup>

Considering this scenario, we aimed to prospectively study the impact of HUA history on sedation and analgesia practices applied for ICU patients on MV, as well as to assess its influence on patients' outcome and mortality.

**Methods**

Prospective, observational multicentre study of all adult patients consecutively admitted in 8 ICUs of public and university hospitals of Spain between November and December

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