

POSTER PRESENTATION

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Clinical outcome of septic patients with undetectable vitamin D levels at ICU admission

G De Pascale^{1*}, MS Vallecocchia¹, E Gasperin¹, D Giacobelli¹, A Schiattarella², A Autunno¹, V Di Gravio¹, S Marsili¹, SL Cutuli¹, MA Pennisi¹, C Zuppi², SA Quraishi³, M Antonelli¹

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Introduction

Septic patients with very low vitamin D (VD) levels are expected to most benefit from supplementation strategies but few data are available in this specific population [1].

Objectives

Our purpose is to investigate the clinical/epidemiological profile and sepsis-related outcome of critically ill septic patients with undetectable VD levels at ICU admission.

Methods

We conducted an observational study enrolling, during a 12 months period, consecutive patients admitted to our ICU with severe sepsis/septic shock.

Results

170 blood samples were obtained from 107 patients (septic shock / severe sepsis: 62% / 38%). ICU admission VD deficiency ($\leq 20\text{ng/mL}$) was observed in 93.5% of the patients: 57 (53.3%) showed undetectable levels ($< 7\text{ng/mL}$). In patients ($n = 33$) who received, during the ICU stay, more than one VD blood sampling, hypovitaminosis D category did not change over time ($p=\text{ns}$). The principal infection site was the lung (48.6%): 50 (46.7%) patients were bacteraemic. Comparing patients with undetectable VD levels with those ones with values $\geq 7\text{ng/mL}$, there were not significant differences regarding main comorbidities, presenting features and disease severity ($p=\text{ns}$). The former group showed a higher rate of microbiologically confirmed infections but a lower percentage of microbiological eradication (80.7% vs. 58%, $p = 0.02$; 35.3% vs 68%; $p = 0.03$, respectively).

Furthermore they experienced longer duration of mechanical ventilation and vasopressor support: 9 *ds* [3.75-12.5] vs. 4 *ds* [2-0], $p = 0.04$; 7 *ds* [4-10] vs. 4 *ds* [2-7.25], $p = 0.02$. Sepsis-related mortality rate was higher in patients with VD levels $< 7\text{ng/mL}$ (50.9% vs 26%). Multivariable regression analysis confirmed ICU admission undetectable VD concentration ($p = 0.01$) as independent predictor of sepsis-related mortality.

Conclusions

Our results suggest that in critically ill septic patients undetectable VD levels at ICU admission may be a major determinant of clinical outcome. Further studies should assess the impact of replacement strategies in this subgroup of patients.

Authors' details

¹Sacro Cuore Catholic University, A. Gemelli Hospital, Department of Anesthesiology and Intensive Care, Rome, Italy. ²Sacro Cuore Catholic University, A. Gemelli Hospital, Institute of Biochemistry and Clinical Biochemistry, Rome, Italy. ³Harvard Medical School, Massachusetts General Hospital, Department of Anesthesia, Critical Care and Pain Medicine, Boston, United States.

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¹Sacro Cuore Catholic University, A. Gemelli Hospital, Department of Anesthesiology and Intensive Care, Rome, Italy
Full list of author information is available at the end of the article