

POSTER PRESENTATION

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

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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.

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