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

The Harvard community has made this article openly available. Please share how this access benefits you. Your story matters

Citation

Published Version
doi:10.1186/2197-425X-3-S1-A80

Citable link
http://nrs.harvard.edu/urn-3:HUL.InstRepos:27822188

Terms of Use
This article was downloaded from Harvard University’s DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA
Clinical outcome of septic patients with undetectable vitamin D levels at ICU admission

G De Pascale1*, MS Vallecoccia1, E Gasperin1, D Giacobelli1, A Schiattarella2, A Autunno1, V Di Gravio1, S Marsili1, SL Cutuli1, MA Pennisi1, C Zuppi2, SA Quraishi3, M Antonelli1

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 (< 20ng/mL) was observed in 93.5% of the patients: 57 (53.3%) showed undetectable levels (< 7ng/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=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 ≥ 7ng/mL, there were not significant differences regarding main comorbidities, presenting features and disease severity (p=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 < 7ng/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.

Published: 1 October 2015

Reference

Cite this article as: De Pascale et al.: Clinical outcome of septic patients with undetectable vitamin D levels at ICU admission. Intensive Care Medicine Experimental 2015, 3(Suppl 1):A80.