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Introduction:
Vitamin D is not only important for calcium and phosphate homeostasis, but it also has a role in sepsis regulation. Many previous studies reported a high prevalence of vitamin D insufficiency in critically ill patients; however, data about vitamin D status are limited in adult patients with sepsis who visited an emergency department (ED). Therefore, we decided to evaluate the association of 25-hydroxyvitamin D (25-OH vit D) level on sepsis severity and risk of hospitalization in the adult septic patient who visited ED.

Methods:
Cross-sectional study was conducted in the ED of the Faculty of Medicine Vajira Hospital, Navamindradhiraj University, Bangkok, Thailand, from 1 March to 30 September 2015. Patients age ≥ 18 who diagnosed with sepsis were enrolled. 25-OH vit D level was analyzed correlated with illness severity of sepsis measured by APACHE-II and MEDS score using linear regression analysis. And the risk of hospitalization was analyzed using logistic regression analysis.

Results:
One hundred and one patients were enrolled. On average, there were 67.9±18.2 years old, 56% (n=57) were female, APACHE-II score = 14.2±6.3, MEDS score = 7.9±4.6, and 25-OH vit D level = 18.5±11.3 ng/mL. The admission rate in our cohort was 88% (n=89). Significant correlations between 25-OH vit D level and sepsis severity scores were found, which measured by APACHE-II and MEDS score (coef -0.12; 95%CI, -0.22 to -0.006, p=0.04 and -0.10; 95%CI, -0.17 to -0.02, p=0.02, respectively). However; 25-OH vit D level could not predict hospitalization in our septic patients (OR = 0.98; 95%CI, 0.93-1.03; p=0.33), while APACHE-II and MEDS score had an influence on patient hospitalization (OR = 1.51; 95%CI, 1.21-1.89; p<0.001 and OR = 1.56; 95%CI, 1.23-1.97, p<0.001; respectively).

Conclusion:
25-OH vit D level had a significant negative association with sepsis severity evaluated by APACHE-II and MEDS score. However, it cannot predict hospitalization as the same as APACHE-II and MEDS scoring system.