

POSTER PRESENTATION

Open Access

# Validation of acute physiology and chronic health evaluation (APACHE) IV score in a Korea provincial ICUS by comparing Korean simplified acute physiology score (SAPS) III

JY Moon<sup>1</sup>, IS Kwon<sup>2</sup>, JW Lee<sup>3</sup>, S-I Park<sup>4</sup>, G-R Chon<sup>5\*</sup>, JY Lee<sup>5</sup>, J-Y Ahn<sup>6</sup>, Y-J Chang<sup>6</sup>, S-J Kwon<sup>7</sup>,  
Korean Chungcheong Critical Care Research Group (KCCCRG)

From ESICM LIVES 2015  
Berlin, Germany. 3-7 October 2015

## Introduction

The Simplified Acute Physiology Score (SAPS) III has been validated as the Korea SAPSIII model in Korea. However, the Acute Physiology and Chronic Health Evaluation (APACHE) IV model has not yet been validated in Korea provincial intensive care units (ICUs).

## Objectives

The aim of this study was to compare the ability of the APACHE IV with Korean SAPS 3 in predicting hospital mortality in a provincial ICU population.

## Methods

The study was designed as a prospective cohort study for patients admitted to the nine intensive care units in the four provincial academic medical centers from September 2013 to February 2014. Validation and comparison were conducted to measure discrimination and calibration with using the area under the receiver operating characteristic curve (AUC) and the Hosmer-Lemeshow test, respectively.

## Results

Among 733 enrolled patients, 34.4% (252/733) were surgical patients. The hospital mortality was 23.5%. The median APACHE IV score was 71(Standard deviation  $\pm$  33.8), and the predicted death rate was 25.6% respectively. The observed hospital mortality was 23.5%. The discriminative powers of two models were similar. The

AUCs were 0.753 (95% confidence intervals (CI) : 0.711-0.794) for APACHE IV and 0.768 (95% CI : 0.727-0.809) for Korean SAPS III respectively. Hosmer-Lemeshow C and H statistics showed good calibration for both models, (H = 8.69, p = 0.370; C = 128.17, p = 0.824 for APACHE IV, and H = 8.40, p = 0.396; C = 178.98, p < 0.001 for Korean SAPS III respectively).

## Conclusions

For Korea regional ICU patients, the APACHE IV and Korean SAPS III showed good discrimination and good calibration for hospital mortality. Therefore, the APACHE IV prognostic model might be applied to predict mortality in Korea regional ICUs.

## Authors' details

<sup>1</sup>Chungnam National Univ. Hospital, Internal Medicine, Daejeon, Korea, Republic of Korea. <sup>2</sup>Chungnam National Univ. Hospital, Clinical Trials Center, Daejeon, Korea, Republic of Korea. <sup>3</sup>Chungnam National University Hospital, Daejeon Regional Emergency Center, Daejeon, Korea, Republic of Korea. <sup>4</sup>Chungnam National University Hospital, Anesthesiology and Pain Medicine, Daejeon, Korea, Republic of Korea. <sup>5</sup>Chungju Hospital, Konkuk University School of Medicine, Internal Medicine, Chungju, Korea, Republic of Korea. <sup>6</sup>Chungbuk National Univ. Hospital, Internal Medicine, Cheongju, Korea, Republic of Korea. <sup>7</sup>Konyang University Hospital, Internal Medicine, Daejeon, Korea, Republic of Korea.

Published: 1 October 2015

## References

1. So Yeon Lim, et al: Validation of SAPS3 Admission Score and Its Customization for Use in Korean ICU Patients: A Prospective Multicenter Study. *Respirology* 2013, **18**(6):989-995.
2. Jae Yeol Kim, et al: External Validation of the Acute Physiology and Chronic Health Evaluation II in Korean Intensive Care Units. *Yonsei Med J* 2013, **54**(2):425-431.

<sup>5</sup>Chungju Hospital, Konkuk University School of Medicine, Internal Medicine, Chungju, Korea, Republic of Korea  
Full list of author information is available at the end of the article

3. Hosmer DW, Lemeshow S: Confidence interval estimates of an index of quality performance based on logistic regression models. *Stat Med* 1995, **14**:2161-2172.
4. Hannah Lee, *et al*: Validation of the APACHE IV model and its comparison with the APACHE II, SAPS 3, and Korean SAPS 3 models for the prediction of hospital mortality in a Korean surgical intensive care unit. *Korean J Anesthesiol* 2014, **67**:115-122.

doi:10.1186/2197-425X-3-S1-A335

**Cite this article as:** Moon *et al*: Validation of acute physiology and chronic health evaluation (APACHE) IV score in a Korea provincial ICUS by comparing Korean simplified acute physiology score (SAPS) III. *Intensive Care Medicine Experimental* 2015 **3**(Suppl 1):A335.

**Submit your manuscript to a SpringerOpen<sup>®</sup> journal and benefit from:**

- Convenient online submission
- Rigorous peer review
- Immediate publication on acceptance
- Open access: articles freely available online
- High visibility within the field
- Retaining the copyright to your article

---

Submit your next manuscript at ► [springeropen.com](http://springeropen.com)

---