

INTRODUCTION

In South Korea, injured people due to road traffic accident could receive compensation for medical cost through automobile insurance. However, automobile insurance system in health care utilization seems to be managed inefficiently. This study aimed to investigate which hospital factors were associated with length of stay (LOS) as an indicator of health care utilization under automobile insurance in inpatients with invasive cervical discectomy.

METHOD

Study population

- data: from the automobile insurance claim data from Health Insurance Review & Assessment Service (HIRA)

The first data set was claim data for 850 patients who received invasive cervical discectomy during January 2014 to December 2015. Patients with automobile insurance could be identified based on the electronic data interchange claim code that was provided during review of reimbursement for healthcare services

The second data set included aggregated claim data for each study year regarding medical institution utilization such as total cases of hospitalization, total volume of invasive cervical discectomy by health insurance during January 2014 to December 2015.

Statistical analysis

Poisson regression analysis was analyzed to examine the association between LOS and hospital level variables after adjusting for both inpatient and hospital level variables.

These analyses were performed for both inpatient-level and hospital-level variables. Next, analysis of variance (ANOVA) was performed for comparison of the average and standard deviations for LOS by each categorical variable. Third, we performed Poisson regression analysis after controlling over-variance in order to examine both inpatient-level and hospital-level variables associated with LOS.

Sub-group analyses were also performed according to study period, bed turnover rate, number of beds, and number of neurosurgic or orthopedic specialists. Bed turnover rate, number of beds, and number of neurosurgic or orthopedic specialists were categorized by median value.

All statistical analyses were performed using SAS statistical software version 9.4. All P-values calculated were two-sided and considered significant at $P < 0.05$.

RESULTS

The average LOS under automobile insurance was 25.75 days. A higher proportion of inpatients with automobile insurance were associated with longer LOS (relative risk (RR): 1.027 per 1% increase, 95% CI: 1.012 to 1.042). In addition, such associations were significant only in hospitals with small sized and low volume. A higher hospital volume of invasive cervical discectomy (RR: 0.970 per 10 cases increase, 95% CI: 0.945 to 0.997), bed turnover rate (RR: 0.988 per 1 increase, 95% CI: 0.979 to 0.997), and number of neurosurgic or orthopedic specialists (RR: 0.930 per 1/100 beds increase, 95% CI: 0.876 to 0.987) was associated with shorter LOS.

We also performed sub-group analysis by study period and median value of hospital bed turnover rate, number of beds, and number of neurosurgic or orthopedic specialists to investigate relationship between proportion of inpatients with automobile insurance and LOS. Proportion of inpatients with automobile insurance showed positive relation with LOS in each study period except for the period from July to December 2014. Proportion of inpatients with automobile insurance showed positive relation with LOS in only the sub-group for less than median of bed turnover rate, number of beds, and number of neurosurgic or orthopedic specialists

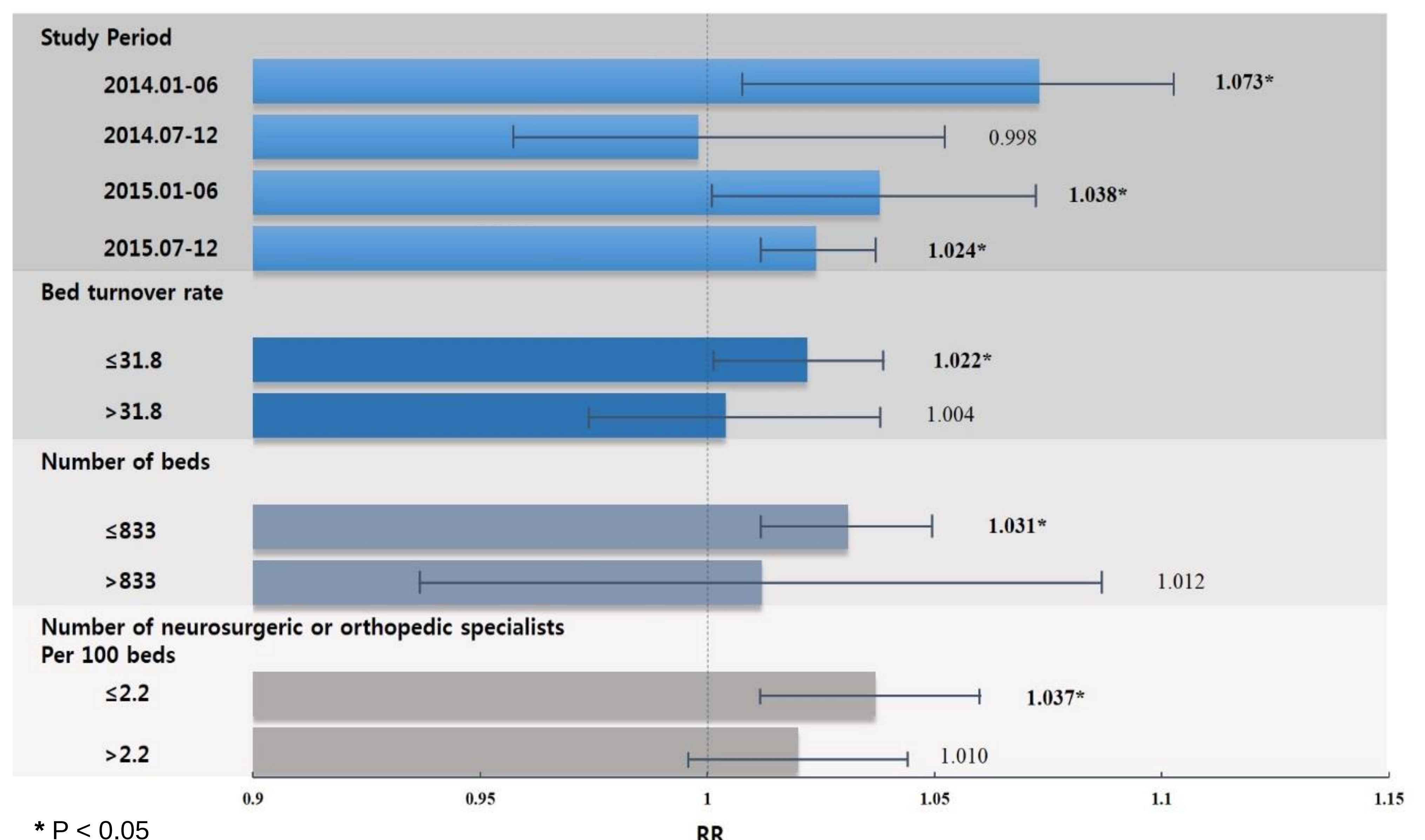


Figure 1. The association between proportion of inpatients with auto insurance and length of stay (LOS) according to study period, bed turnover rate, number of beds, and number of neurosurgic or orthopedic specialists.

CONCLUSIONS

Our findings suggest that higher proportion of inpatients with automobile insurance was associated longer LOS in hospitals with small sized and low provider volume including surgeon and hospital volume. On the basis of these findings, health policy makers and healthcare professionals should consider proper strategies for efficient management of automobile insurance and small sized hospitals.

REFERENCES

- Shin et al. BMC Health Service Research (2017) 17:567
- Kyoung Won Shin, Yonsei University Master's Thesis, 2016.