



CORRESPONDENCE

A more accurate incidence of acute spinal cord injury in South Korea can be estimated by the national health insurance system

Sung Hoon Choi¹ · Soo-Young Jeong¹ · Chang-Nam Kang¹

Received: 8 April 2020 / Revised: 13 April 2020 / Accepted: 14 April 2020 / Published online: 30 April 2020
© International Spinal Cord Society 2020

To the Editor:

We thank Dr Ja-Ho Leigh et al. [1] for their interest in our study [2] and the opportunity to address some of the posted questions. First, per your comment, a sizable number of traumatic spinal cord injury (SCI) could be excluded from this study sample because we only analyzed the national health insurance which excludes the national worker's compensation and automobile insurance. It's not easy to identify the exact incidences and prevalence of specific diseases showing a small frequency of occurrence such as acute SCI with a national database. And the accessibility of related data of the national worker's compensation is impossible currently due to their closed-access policy. However, from July 2013, the database of the Health Insurance Review and Assessment Service (HIRA) includes that of automobile insurance because HIRA conducts the appropriateness of treatment for patients with automobile insurance after signing the contract of entrustment for the examination of medical expenses [3]. Therefore, we can analyze the incidence of acute SCI more precisely by using both the database of national health insurance and automobile insurance, and we compared the number of cases of acute SCI and age-adjusted rate per 100,000 persons from 2007 to 2012 and from 2014 to 2017.

In this study, from 2007 to 2012 and from 2014 to 2017, the number of cases of acute SCI were 1032.3 and 1209.8, respectively, and 25.7 and 27.4 were age-adjusted rate per 100,000 persons during the same period. We compared the differences in the number of cases of acute SCI and age-adjusted rate per 100,000 persons using the Mann-Whitney nonparametric analysis, and they showed statistically

significant differences ($p < 0.05$). Therefore, your opinions might be appropriate, and a more careful research design is warranted to analyze the effect of including those with automobile insurance by setting a sufficient period through HIRA data since July 2013.

Second, the peak incidence occurred among adults in their 50s for the entire observational period in our study and this tendency continued after the year 2014, which incorporate the database of the automobile insurance. Also, the proportion of national worker's compensation in the total acute SCI would be not considered to be high because it is mandatory to demonstrate the cause-and-effect relationship for reimbursement to the national worker's compensation. Therefore, it is deemed necessary for a high level of evidence-based study to refute the high ratio of middle and old ages in acute SCI, which is the result of this study.

Lastly, we also agree with your comment that the medical system and the database of South Korea are appropriate for developed countries, which merits consideration when discussing international comparisons. However, some specific medical issues such as pulmonary tuberculosis show a typical feature of developing countries. Therefore, aside from discussing whether South Korea is a developed country or not, we believe that national population-based studies could help to elucidate the current status and treatment trends of specific medical issues.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

✉ Chang-Nam Kang
cnkang65@hanyang.ac.kr

¹ Department of Orthopaedic Surgery, Hanyang University College of Medicine, Seoul, Republic of Korea

Reference

1. Leigh J-H, Kim H-K, Bang MS. Incidence of acute spinal cord injury in South Korea does not reflect a sizable number of traumatic

- spinal cord injuries. *Spinal Cord*. <https://doi.org/10.1038/s41393-020-0475-x>. (2020).
2. Choi SH, Sung C-h, Heo DR, Jeong S-Y, Kang C-N. Incidence of acute spinal cord injury and associated complications of methylprednisolone therapy: a national population-based study in South Korea. *Spinal Cord*. 2020;58:232–7.
 3. WHO. Republic of Korea health system review. Manila: WHO Regional Office for the Western Pacific; 2015.