Changes of Invasive Pneumococcal Disease Burden in Korea, 2005-2014:  
Analysis of the National Health Insurance Database

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BACKGROUND

- Epidemiology of pneumococcal infection is changing rapidly after introduction of pneumococcal conjugate vaccine.
- Pneumonia with empyema and/or bacteremia, febrile bacteremia and meningitis are the commonest manifestations of invasive pneumococcal disease (IPD).
- The incidence of IPD has been unknown for decades in Korea.
- This study was done to estimate the incidence rate of IPD and to describe the change of burden after introduction of the vaccine in Korea.

METHODS

- **Materials**: We retrieved and analyzed the database of 2005 to 2014 from the Korean National Health Insurance Service (NHIS) which provides health insurance to almost all Korean population.
- **Definition of IPD**: The hospitalized cases who diagnosed as pneumococcal sepsis (ICD-10 Code A49.3), pneumococcal meningitis (G00.1), pneumococcal pericarditis (I10.1), and pneumococcal arthritis and polyarthritis (M00) were defined as IPD incidence.
- **Pneumococcal pneumonia (J13)**: It was also identified in the same database.
- **Statistics**: The population-based incidences of the IPD and pneumonia per 100,000 were calculated. The hospital day and medical cost also retrieved by IPD and age group.

RESULTS

**Fig 1.** IPD incidences from 2005 to 2014

**Fig 2.** IPD incidences from 2005 to 2014 by age-groups

**Fig 3.** Change of IPD incidences from 2005 to 2014 by Dz

**Fig 4.** Pneumo. pneumonia incidences from 2005 to 2014

**Fig 5.** Pneumo. pneumonia incidences from 2005 to 2014 by age-groups

**Fig 6.** Sepsis(Lt) & pneumonia(Rt) from 2005 to 2014 by sex

SUMMARY

- The over-all incidence of IPD was 0.79 per 100,000.
- The incidence of pneumococcal sepsis and pericarditis increased for recent 10 years in elderly and adult.
- During this period, 119,370 pneumococcal pneumonia cases were identified from the database (23.8 per 100,000).
- The incidence of pneumococcal pneumonia has been decreasing for a decade, especially sharply in children.
- The cost of hospitalization for IPD is highest in sepsis and meningitis, especially in young children and elderly.
- The results suggest that the incidence of pneumococcal pneumonia has been decreasing during study period (2005-2014) after introduction of pneumococcal vaccine.
- The both incidence of pneumococcal sepsis and pneumococcal pericarditis, however, have been increasing in elderly in this period in Korea.