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## Carta al Director

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### Pneumonia: burden of disease

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Sir,

The importance of determining disease burden for pneumonia is sufficiently proven. A large number of articles have been published in our country<sup>1-3</sup> and outside<sup>4-7</sup> in this sense.

Aware of this, our group has set up a retrospective study in which have been revised 5,758 episodes of pneumonia admitted to the University Hospital of Valladolid, that serving a population of 275,000, for the period 2009-2014. The annual income range for this cause ranged from 1,029 (in 2009) and 907 (2014), with figures of 925, 979, 1002 and 916 for intermediate consecutive years. Hospitalization for pneumonia was higher in men than in women with a ratio of 1.78. The mean age of patients admitted for this reason was at 67.86 years with a standard deviation of 23.28 years. The age range in which more episodes documented was the 76-85 years with 1,844 patients (32.04% of total); the fewest episodes was detected in the range under 15 with 294 patients (5.10% of total). The rate of hospitalization for pneumonia in our study was 3.54 people per 1,000 population hospitalized; being to 23.66 per thousand inhabitants in those over 86 years. The hospitalization rate that we obtained in our study indicates that 38.88 per thousand incomes is a type of pneumonia. As for seasonal analysis in the first five weeks of the onset of winter in our latitude (end of year two and three of the beginning of the next) maximum input values are reached.

The female-male ratio of 0.58 published by Uematsu et al.<sup>7</sup> in a multicenter study of 289 hospitals is particularly matched to that obtained in our work of 0.59 as is also the average age of both series. The burden of hospitalization for acute pneumonia Community described in a series published in 2011 by Gil-Prieto et al.<sup>8</sup> increases to advance the age range and

is slightly higher than that documented for us. The difference between their studies and ours is that we have studied all ranks and not only those over 14 years as by Uematsu et al.<sup>7</sup> or over 50 years in the case of Gil Prieto et al.<sup>8</sup>. In our experience, 75% of patients admitted for pneumonia at age 62 HCUV years.

The present contribution seeks to establish a single message: the burden of hospitalization for pneumonia from the eighth decade of life is very important in our environment. Concomitantly it should be noted that a strategy of vaccination against the agents mainly involved in the etiology of pneumonia, *Streptococcus pneumoniae* or *Haemophilus influenzae*, can be highly efficient in our environment. In this sense, the greater understanding of the epidemiology of pneumococcal disease is the key for setting public health policies. Our results are presented as a preliminary step to an economic assessment of the vaccination strategy against *S. pneumoniae* in our old population and determining risk conditions that provide more useful. These analyzes of efficiency are already being made recently by other authors in other contexts, presenting vaccination as a highly efficient tool<sup>9,10</sup>.

#### REFERENCES

1. Vila-Córcoles A, Aguirre-Chavarría C, Ochoa-Gondar O, de Diego C, Rodríguez-Blanco T, Gómez F et al. Influence of chronic illnesses and underlying risk conditions on the incidence of pneumococcal pneumonia in older adults. *Infection* 2015; 43: 699-706.
2. Gil-Prieto R, Pascual-García R, Walter S, Álvaro-Meca A, Gil-De-Miguel Á. Risk of hospitalization due to pneumococcal disease in adults in Spain. The CORIENNE study. *Hum Vaccin Immunother* 2016; 12: 1900-5.
3. Calderón C, Dennis R. Economic cost of *Streptococcus pneumoniae* community-acquired pneumonia, meningitis and bacteremia in an adult population that required hospitalization in Bogotá, Colombia. *Biomedica* 2014; 34: 92-101.

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4. Griffin MR, Zhu Y, Moore MR, Whitney CG, Grijalva CG. U.S. hospitalizations for pneumonia after a decade of pneumococcal vaccination. *N Engl J Med.* 2013 ; 369: 155-63.
5. Wu DB, Roberts CS, Huang YC, Chien L, Fang CH, Chang CJ. A retrospective study to assess the epidemiological and economic burden of pneumococcal diseases in adults aged 50 years and older in Taiwan. *J Med Econ* 2014; 17: 312-9.
6. Amodio E, Costantino C, Boccalini S, Tramuto F, Maida CM, Vitale F. Estimating the burden of hospitalization for pneumococcal pneumonia in a general population aged 50 years or older and implications for vaccination strategies. *Hum Vaccin Immunother* 2014; 10: 1337-42.
7. Uematsu H, Kunisawa S, Yamashita K, Imanaka Y. The Impact of Patient Profiles and Procedures on Hospitalization Costs through Length of Stay in Community-Acquired Pneumonia Patients Based on a Japanese Administrative Database. *PLoS One* 2015; 10: e0125284
8. Gil-Prieto R, García-García L, Alvaro-Meca A, Méndez C, García A, de Miguel AG. The burden of hospitalizations for community-acquired pneumonia (CAP) and pneumococcal pneumonia in adults in Spain (2003-2007). *Vaccine* 2011; 29: 412-6.
9. Lorente-Antoñanzas R, Varona Malumbres JL, Antoñanzas F, Rejas J. La vacunación anti-neumocócica con la vacuna conjugada 13-valente en población inmunocompetente de 65 años: análisis del impacto presupuestario en España implicando un modelo de transmisión dinámica. *Rev Esp Salud Pública.*2016; 90: 1-12.
10. Werkhoven C, Hollingsworth R, Huijts S, Bolkenbaas M, Webber C, Patterson S, Sanders E, Bonten M. Pneumococcal conjugate vaccine herd effects on non-invasive pneumococcal pneumonia in elderly. *Vaccine.* 2016; 34 :3275-82.