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Thymic stromal lymphopoietin, IL-33 and periostin in infants with recurrent wheezing after severe bronchiolitis
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Introduction
Much attention has recently been focused on thymic stromal lymphopoietin(TSLP)(1), IL-33(2) and periostin(3) in allergic diseases, but less is known about their role in viral bronchiolitis and the subsequent development of recurrent wheezing and asthma.

Our first aim was to characterize the response of TSLP, periostin, IL-10, IL-33 and IFN-γ in the nasopharyngeal aspirate(NPA) of infants with severe bronchiolitis. Additionally, we aimed to determine if detection of these proteins in infants hospitalized with bronchiolitis was associated with the severity of the episode and with the development of recurrent wheezing in the two years following the acute episode.

Methods
A follow-up study of 159 infants hospitalized for bronchiolitis, and a control group of 42 healthy-infants, was conducted from March/2014 to December/2015 at Severo Ochoa University Hospital (Madrid. Spain). Epidemiological and clinical data were collected through a structured questionnaire. Viral detection was performed by multiple polymerase chain reaction in NPA. We analyzed in nasal secretions, IFN-γ, IL-10, TSLP, IL-33 and periostin. Patients were followed-up for 2 years after acute bronchiolitis. Data on wheezing episodes and maintenance treatment were collected through a structured questionnaire. The study was approved by the hospital Ethics Committee and informed consent from parents was obtained.

Results
At least one virus was detected in 159(87.3%) hospitalized infants. The most frequent were respiratory syncytial virus(RSV):149(70%) and rhinovirus(RV): 42(19.7%). Infants with bronchiolitis had higher levels of TSLP(P=0.02), IL-33(P<0.001) and periostin(P=0.003) than healthy controls. Detectable levels of TSLP and periostin were more frequent in virus-positive than in virus-negative patients(P=0.05). TSLP and IL-33 were also more common in coinfections, mainly RSV and HRV, than in single-infections(P<0.05). No patient with bronchiolitis but with negative viral detection had detectable levels of nasal TSLP or IL-33. Infants with hospital stay ≥5 days were more likely to have detectable levels of nasal TSLP and periostin after adjusting by age(P=0.01). Oral corticosteroid for wheezing was more frequently prescribed in the first year of follow-up in infants with positive TSLP(50% vs. 19.4%, p =0.007). Also, children who required oral corticosteroids during the second year had a higher level of TSLP(69.2 pg/ml vs 42.4 pg/ml, p=0.007) and a lower level of IFN-γ(8,6 pg/ml vs. 27.2 pg/ml, p= 0.008) during the acute episode.

Conclusion
Severe bronchiolitis is associated with elevated nasal levels of TSLP, IL-33 and periostin. Children who developed recurrent wheezing and need for oral corticosteroids at two years of follow-up had significantly higher nasal TSLP and lower IFN-γ values.

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References