POLYMERASE CHAIN REACTION IDENTIFYING PNEUMOCOCCAL COMMUNITY ACQUIRED PNEUMONIA IN CHILDHOOD

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BACKGROUND AND AIMS

Streptococcus pneumoniae is the most common cause of community-acquired pneumonia (CAP), despite being underestimated due to low sensitivity of cultures. The utilization of molecular methods, like the polymerase chain reaction (PCR) can increase the identification of the etiologic diagnosis of CAP.

METHODS

This was a retrospective study, conducted in “Irmandade da Santa Casa de Misericórdia de São Paulo”/Brazil, from January/2012 to December/2017. We have included patients admitted due to severe CAP that was tested by *lytA* targeted PCR for *Streptococcus pneumoniae* detection. Chest X-rays were analyzed by radiologists, blindly.

RESULTS

Between January 2012 and December 2017, we have included 97 patients with CAP. The median age was three years (IQR=1-6 years), the median length of stay 13 days (IQR=7-22 days) and 3 (3.2%) deaths. There were 24.2% (n=23) patients that had used antibiotics previous to admission. Pleural effusion occurred in 46.4% (n=45) of the children, and it was associated with positive serum PCR (p=0.002). *Pneumococcus* was detected in 12.5% (n=11) of the cases by PCR, all of them with pleural effusion. There were six positive blood cultures, 2 of them with *S. pneumoniae* identified, 3 with *Haemophilus* sp and 1 with *S. aureus*. Of the patients with positive blood culture, two of them had positive PCR: one with *S.pneumoniae* in the blood culture and the other with *Haemophilus* sp.

CONCLUSIONS

The use of PCR increased the diagnosis in patients with culture-negative community-acquired pneumonia. The method seemed to be more sensitive in those with most severe pneumonia.

TABLE: *Streptococcus pneumoniae* numeric distribution and its frequencies in blood cultures, pleural effusion cultures and polymerase chain reaction (PCR) in serum and pleural effusion, from January/2012 to December/2017 in children with community-acquired pneumonia

<i>Streptococcus pneumoniae</i>	Blood cultures (N=63)	Pleural effusion Cultures (N=28)	PCR in serum (N=89)	PCR in pleural effusion (N=23)
Positive	n=2 (3,2%)	n=2 (7,1%)	n=13 (14,6%)	n=16 (69,5%)
Negative	n=61 (96,8%)	n=26 (92,9%)	n=76 (85,4%)	n=7 (30,5%)