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263 **Molecular diagnostics reveals persistence of serotype 3 as the main cause of pediatric complicated pneumonia in Portugal despite extensive PCV13 use**

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Background: The use of molecular approaches allows the diagnosis and serotyping of pediatric complicated pneumococcal pneumonia (PCPP) cases which are frequently culture-negative. A previous study revealed a dominance of serotype 3, allowing the identification of a considerable number of vaccine failures in Portugal during 2010-2015. We aimed to characterize the serotypes causing PCPP after the introduction of PCV13 in the National Immunization Plan.

Materials/methods: From January 2016 to December 2018, the pediatric departments of 62 hospitals were asked to submit pleural fluid of all PCPP suspected cases. Available pneumococcal isolates were serotyped by Quellung. Real-time PCR targeting lytA, wzg and capsule specific genes was performed in culture negative cases.

Results: A total of 124 samples was submitted, of which 7 were culture-positive (6%). Among the remaining 117 pleural fluid samples, pneumococci were identified in 62 (53%).
The main capsular serotype identified was serotype 3 (n=50, 72%). Other serotypes included: serotypes 14 and 19A (n=3 each), serotype 1 (n=2), and serotypes 8, 11A/11D and 6B (n=1 each). Non-vaccine serotypes were present in 8 samples (12%). An increase in serotype 3 ($p<0.001$) and a decrease in serotype 1 ($p=0.0011$) were noted relative to 2010-2015. It was also possible to identify 21 vaccine failures, mostly due to serotype 3 (n=17), but also involving serotypes 14 and 19A (n=2 each).

Conclusions: The decrease of serotype 1 is consistent with a vaccine effect. However, the continued dominance of serotype 3 and the considerable number of vaccine failures suggest a lower efficacy of PCVs against PCPP caused by serotype 3.