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Introduction:
This study aimed to evaluate the appropriateness of the initial ATB therapy in S. pyogenes (GAS) sepsis (ie. use of proteosynthesis inhibitors (PI) in combination with betalactams) based on atypically high procalcitonin (PCT) concentrations. We hypothesised that PCT levels in GAS sepsis are unique within gram positive sepsis, resembling the values of gram-negative sepsis (GNS). Thus, we considered addition of PI in all cases of sepsis of unknown etiology with PCT higher than 3 (references) in the first 24 hours.

Methods:
Retrospective analysis of an initial choice of ATB in patients with GAS sepsis when acknowledged that high PCT concentrations might indicate the presence of GAS (n=16, hospitalised between 2019 and 2020) compared to routine praxis (n=46, 8-year observation period; 2010-2018). The hypothesis was based on an 8-year-long observation of extremely high PCT concentrations in patients with GAS sepsis. The relationship between appropriateness of the initial ATB therapy and high PCT values was tested by chi-squared contingency table test.

Results:
During an 8-year observation period, appropriate initial ATB therapy was received by five out of 46 patients (11%) because the median PCT concentration in all evaluated patients was 12.41 ng/mL (IQR: 5.58-54.7 ng/mL) which, according to accepted cut-off PCT values, indicated GNS covering. When high values of PCT considered as potential indicator of GAS sepsis, the appropriateness of initial therapy was significantly increased (p<0.001), 11 out of 16 (69%) received appropriate initial ATB therapy, median PCT concentration was 25.1 ng/mL (IQR: 15.88-52.34 ng/mL)

Conclusion:
High concentrations of PCT are measured in patients with GAS sepsis and therefore, possible GAS etiology and use of PI should be considered when prescribing initial ATB therapy in septic patients with high PCT concentrations.

References: