

P2049 The impact of improper empiric usage of anti-pseudomonal agents for septic patients upon admission to an acute care hospital

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Background: Many septic patients are receiving empiric anti-Pseudomonal (or Gram-negative non-glucose fermenting, i.e., GNNGF) coverage, upon admission to acute care hospitals, despite the fact that the indications are not scientifically established. Improper and overuse of anti-Pseudomonals might contribute to the burden of resistance.

Materials/methods: A retrospective case-control and cohort analyses, pertaining to the characteristics of adult septic patients who received empiric anti-Pseudomonals, along with its impact on patients' outcomes, were executed for 4 consecutive months (08-12/2016) at Assaf Harofeh Medical Center (AHMC), Israel. "Proper" empiric anti-Pseudomonal usage was defined if 1) the patient received the agents as per IDSA guidelines, or 2) ≥ 22 points per local validated score that predicts the occurrence of multi drug-resistant organism (MDRO) infection upon admission to AHMC, or 3) if a GNNGF isolate (e.g., *Pseudomonas aeruginosa*, *Acinetobacter baumannii*, *Stenotrophomonas maltophilia*) was eventually identified as a causative pathogen. Risk factors and outcomes were queried by logistic and Cox regression, respectively.

Results: Only in 57 (3.7%) of 1,536 adults who presented with acute sepsis, GNNGF was the causative pathogen. There were 192 (13%) who received empiric anti-Pseudomonals, of which 161 (84%) were defined as "proper". Patients who received empiric anti-Pseudomonals were significantly older ($p < 0.001$), with higher indices of chronic and acute conditions, and higher rates of past MDRO carriage. Both morbidity and mortality outcomes were significantly worse among patients who received empiric anti-Pseudomonals (per univariable analyses), but these were not significant independent associations (per multivariable analyses). However, 24 patients received empiric anti-Pseudomonals only because of IDSA guidelines (15%), none had GNNGF infection, and that was an *independent predictor* for later (up to 90 days) acquisition of carbapenem-resistant *A. baumannii* (CRAB; aOR=7.1, $p=0.03$).

Conclusions: Improper empiric usage of anti-Pseudomonals upon admission to acute care hospitals is very common, i.e., ~4 fold higher than the eventual incidence of GNNGF infections. The major reason for empiric anti-Pseudomonals overuse are IDSA guidelines, which display low performances, do not favorably impacts patients' outcomes, and actually promoted acquisition of CRAB at AHMC. We conclude, that empiric anti-Pseudomonals usage should be based on local and validated prediction tools and not on IDSA guidelines.