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Oral Session
New old antibiotics: safety and efficacy

COLISTIN ASSOCIATED NEPHROTOXICITY: THE IMPACT OF DEFINITION

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Objective: Reported rates of colistin-associated nephrotoxicity in the modern literature vary greatly, from 0 - 56%. The objective of this retrospective study was to assess the impact of the type of nephrotoxicity definition used on the incidence of, risk factors for, and the impact on 30 day mortality of colistin-associated nephrotoxicity.

Methods: All patients receiving 48 hours of colistin at the Detroit Medical Center from 2010-2011 were eligible. Exclusion criteria included receipt of inhaled colistin and the pre-existing need for renal replacement therapy (RRT). Demographic and patient outcomes data were obtained from patient records. Cases were analyzed for incidence of and risk factors for colistin nephrotoxicity while receiving colistin, using six different published definitions for acute kidney injury (AKI).

Results: Sixty patients from 3 hospitals were included in the analysis. The mean age of the cohort was 62.3 12.3 years, 38 (63%) were male, and 42 (70%) were African American. The mean colistin dose administered was 5.5 1.4 mg/kg/day of ideal body weight. The incidence of AKI was high and ranged from 27 to 62%, depending on the nephrotoxicity definition used (Table). Independent predictors of nephrotoxicity also varied as a function of type of definition. Statistically significant increases in 30 day mortality in patients who developed AKI was seen with 4 of 6 definitions.

Conclusion: The incidence of and risk factors for colistin-associated AKI varied greatly as a function of definition used. Uniformity in definitions is needed when reporting rates and risk factors for colistin nephrotoxicity.

Definition	Incidence of Nephrotoxicity (%)	30-day mortality (AKI vs no AKI) (%)	Independent predictors of toxicity
AKIN	37/60 (62)	16/37 (43) vs. 4/23 (17); p= 0.04	Concomitant aminoglycoside, presence of severe sepsis or septic shock
RIFLE	33/60 (55)	15/33 (46) vs. 5/27 (19); p= 0.03	Presence of severe sepsis or septic shock
Increase Scr 0.5 or Decrease Clcr 50%	35/60 (58)	16/35 (46) vs. 4/25 (16); p= 0.01	Presence of severe sepsis or septic shock
Scr 2 or Decrease Clcr 50% or RRT	21/60 (35)	10/21 (48) vs. 10/39 (25);p=0.09	Myocardial infarction, peptic ulcer disease, concomitant aminoglycoside, presence of severe sepsis or septic shock
50% inc in Scr or RRT	33/60 (55)	15/33 (45) vs. 5/27 (19); p=0.03	Presence of severe sepsis or septic shock

Doubling of Scr	16/60 (27)	7/16 (44) vs 13/44 (30); p = 0.30	None identified