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Cardiac patients are very prone to toxicity with potentially nephrotoxic antibiotics commonly used: Case series demonstration.

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BACKGROUND: Elderly patients are prone to drug toxicity in general due to age determined physiologic deterioration of organ function. Furthermore, many of elderly patients are polymorbid and as a result are on concomitant drugs use. Under such conditions, any drug dosing error or inappropriate combination may be fatal particularly in this patient's population. Aminoglycosides and glycopeptides antibiotics are known nephrotoxins in particular for these elderly patients.

AIM: To describe case sires of elderly patients with underlying cardiac diseases, who developed renal function impairment following amikacin and vancomycin treatment and consequences related to toxic drug levels.

METHODS: Data of 8 patients (66-85 years old) 3 males and 5 females treated with glycopeptides antibiotic (vancomycin) or amnoglycosides(amikacin or gentamicin) and suspected for associated toxicity were included in case series . Serum drugs' levels determined by fluorescent polarization immunoassay (FPIA) method were evaluated in clinical context to aid in dose adjustment using computer assisted simulation curves.

RESULTS: Elderly patients on amikacin or gentamicin, and vancomycin therapy demonstrated evident renal function impairment manifested by 250-800 % serum creatinine increase. In one case of amikacin overdose, haemodialysis was required. Trough levels of the drugs were 2 - 15 fold above the recommended range. History of ischemic heart disease, sepsis and other factors leading to or associated with cardiovascular disease were characteristic for these patients, where intervention was needed to rescue the patients from further renal function deterioration.

CONCLUSIONS: These case series illustrate that elderly patients with pre-existing risk may be exposed to unpredictable renal function deterioration during aminoglycosides or glycopeptides antibiotics doses unless monitored without delay regardless of initially normal serum creatinine. Therefore, in cases aminoglycosides or glycopetides antibiotics are of choice in particular in elderly cardiac patients, obtaining serum levels immediately before the second dose and accordingly dosing regimen adjustment is warranted. Timely therapeutic drug monitoring (TDM) as part of multi-disciplinary care may ensure safer and effective therapy with cost-savings and favourable outcomes.