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Abstract (publication only)

Which is easier to manage? – Anxiety of gentamicin-induced nephrotoxicity or gentamicin-induced nephrotoxicity: A surveillance study from a tertiary care cardiac centre in northwest England

T. Al-Badawi*, R. Bagi, M. Hassan, K. Mattam, A. Guleri (Blackpool, UK)

Background: Aminoglycosides have long been recognised for drug-induced nephrotoxicity. Clear recognition of patient and treatment related risk factors including age, pre-existing renal impairment, dose/duration/frequency and therapeutic monitoring[TDM] have improved the situation since early 1980s. However, variation still exists in practice and data on the real impact of this phenomenon. Lancashire cardiac centre[LCC] has 1800 cardio-thoracic[CT] surgeries annually and serves 1.5 million inhabitants in northwest England. We present finding from a prospective study over 3-weeks undertaken to assess gentamicin use, gentamicin TDM and renal functions in emergency and elective cardiac and thoracic surgeries. Methods: Prospective study of 89 CT surgeries over 3-weeks[Sept2011]; gentamicin use, TDM and renal functions[pre and postop]. This study complemented the new prophylaxis policy in CT surgery that replaced previous practice of variable combinations/durations of cefuroxime +/-teicoplanin use(subject to surgeon variation), with use of flucloxacillin or teicoplanin, plus gentamicin[3mg/Kg) at induction/cover over 1st 24h postop. Results: Review of 89 patients included 70.7% [63/89]cardiac and 29.2% [26/89]thoracic surgeries of whom 82.5% [52/63] cardiac/23% [6/26] thoracic patients received gentamicin. Documentation of reason for omission was missing. No gentamicin detected in blood for 40.3% [22/52] cardiac and 66.6% [4/6]thoracic patients. Remaining thoracic patients and 42.3% [22/52] cardiac patients had a trough <1mg/L, with 4.5% [1/22] had marginal raise in creatinine. 9.6% [5/52] cardiac patients had trough level between 1-2mg and 7.6% [4/52] between 2-4mg/L. 13.5% [7/52] had no elevation in creatinine. 1 patient with gent not detected had elevated creatinine. 4 patients had deranged creatinine pre and postoperatively. Conclusions: The revised guidance on antibiotic prophylaxis for CT surgery followed a drive to reduce use of C. difficile driving agents including cefuroxime. None of the patients had any ototoxicity which is the irreversible side effect with aminoglycosides. Elevation in creatinine was reversible when it did increase in patients. There was limited non compliance with using gentamicin as a single dose at induction, documenting reason for omission and missing gentamicin when elevated preoperative creatinine. The results indicate that use of gentamicin as an adjunct with flucloxacillin or teicoplanin in absence of pre-existing renal impairment is safe.