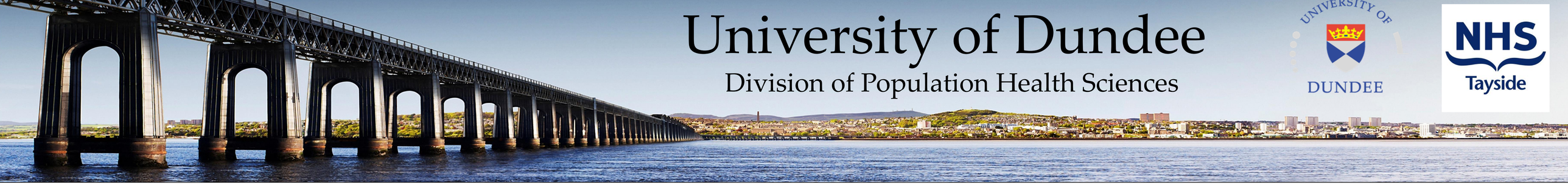

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Risk of Acute Kidney Injury following community prescription of antibiotics

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Introduction

Acute kidney injury (AKI) is associated with increased mortality and risk of future chronic kidney disease (CKD). There is emerging evidence that fluoroquinolones are associated with AKI but these observational studies are limited by confounding[1] .

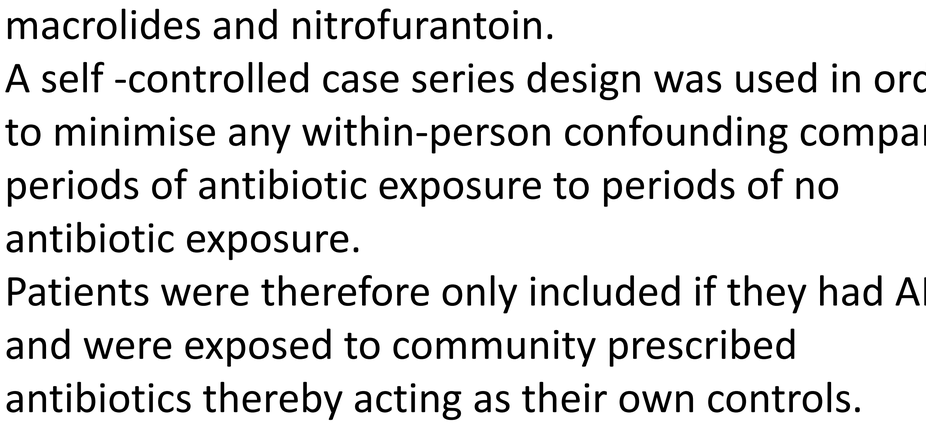
Aims

The aim of this study was to examine the risk of AKI associated with fluoroquinolones and other antimicrobials prescribed in the community using methodology which limits within person confounding.

Methods

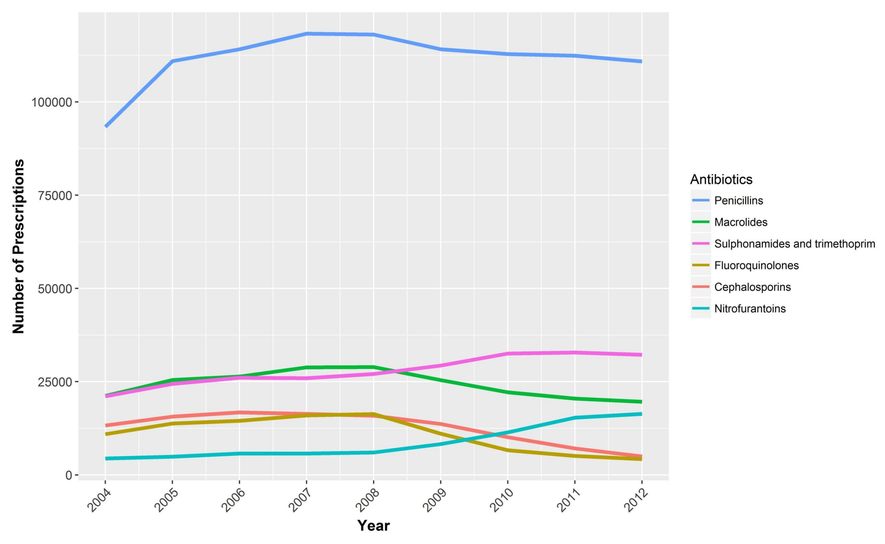
- Adults aged 18 or above, residing in the Tayside region of Scotland , UK between 1st January 2004 to 31st December 2012 and who had a serum creatinine measured were included in the study.
- The exposure of interest was oral, community prescribed antibiotics.
- Antibiotic classes: penicillins, cephalosporins, fluoroquinolones, sulphonamides and trimethoprim, macrolides and nitrofurantoin.
- A self -controlled case series design was used in order to minimise any within-person confounding comparing periods of antibiotic exposure to periods of no antibiotic exposure.
- Patients were therefore only included if they had AKI and were exposed to community prescribed antibiotics thereby acting as their own controls.
- Outcome was community acquired AKI defined by Kidney Disease Improving Global Outcomes (KDIGO) criteria[2] .
- Incidence rate ratios (IRR) with 95% CI were calculated for the different antibiotic classes.

Fig 1: Self-controlled Case Series



Results

Figure 2: Prescribing Patterns



- Figure 1 shows an outline of the study design.
- Prescribing patterns varied over the study due to changes in antibiotic policy (Figure 2)
- 12,773 individuals were included in the study with 94,823 exposed (risk) periods and 85,254 unexposed (control) periods.

Antibiotic Class	IRR (95% CI)
Any antibiotic	1.22 (1.16 - 1.29)
Cephalosporin	0.98 (0.81 – 1.19)
Nitrofurantoin	1.16 (0.91 -1.50)
Penicillin	0.76 (0.70 – 0.83)
Fluoroquinolones	1.13 (0.94 – 1.35)
Sulphonamides and Trimethoprim	3.03 (2.78 – 3.31)
Macrolides	0.78 (0.65 – 0.94)

Conclusion

Our findings confirm previously well-described effects of sulphonamides and trimethoprim on renal function. However, using a study design which limits within person confounding, we did not find any clear evidence to suggest that fluoroquinolones are associated with increased rates of AKI.

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