Association Between Peripheral Neuropathy and Exposure to Oral Fluoroquinolone or Amoxicillin-Clavulanate Therapy.

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Abstract

IMPORTANCE:

Peripheral neuropathy has been associated with systemic fluoroquinolone exposure, but risk has been poorly quantified.

OBJECTIVE:

To calculate relative and absolute risk estimates for the association of fluoroquinolone exposure with peripheral neuropathy and to examine how risk may be affected by timing of fluoroquinolone exposure and by other risk factors.

DESIGN, SETTING, AND PARTICIPANTS:

This nested case-control study used anonymized data from all patients routinely registered with general practices in The Health Improvement Network database, a large primary care population database in the United Kingdom, from January 1, 1999, to December 31, 2015. Data analyses were conducted January 8, 2018. The cohort consisted of 1 338 900 adults issued 1 or more prescriptions of fluoroquinolone (34.3%) or amoxicillin-clavulanate (65.7%) antibiotics. Adults with incident peripheral neuropathy were matched (on age, sex, general practice, and calendar time) with up to 4 controls by using incidence density sampling selected from a cohort prescribed oral fluoroquinolone or amoxicillin-clavulanate antibiotics. Incidence rate ratios of peripheral neuropathy were calculated for fluoroquinolone and for amoxicillin-clavulanate exposure and compared with nonexposure among patients without diabetes, with sensitivity analyses testing the consistency of the results. Population mean-adjusted rate differences were then estimated, including the number needed to harm for various durations of fluoroquinolone therapy.

EXPOSURES:

Current and cumulative exposure to oral fluoroquinolone or amoxicillin-clavulanate antibiotics.

MAIN OUTCOMES AND MEASURES:

Incident peripheral neuropathy cases recorded in electronic medical records.

RESULTS:

In total, 5357 patients with incident peripheral neuropathy (mean [SD] age, 65.6 [14.7] years; 2809 women [52.4%]) were matched to 17 285 controls (mean [SD] age, 64.4 [15.2] years; 9485 women [54.9%]) without diabetes. Current oral fluoroquinolone exposure was associated with an increased relative incidence of peripheral neuropathy compared with nonexposure (adjusted incident rate ratio, 1.47; 95% CI, 1.13-1.92). Risk increased by approximately 3% for each additional day of current fluoroquinolone exposure and persisted for up to 180 days following exposure. No significant increased risk was observed with oral amoxicillin-clavulanate exposure. The absolute risk with current oral fluoroquinolone exposure was 2.4 (95% CI, 1.8-3.1) per 10 000 patients per year of current use. The number needed to harm for a 10-day course was 152 083 patients (95% CI, 117 742-202 778) and was greatest among men and among patients older than 60 years.

CONCLUSIONS AND RELEVANCE:

The results of the present study suggested that oral fluoroquinolone therapy was associated with an increased risk of incident peripheral neuropathy that may depend on the timing of the exposure and the cumulative dose. Health care professionals should consider these potential risks when prescribing fluoroquinolone antibiotics.

Please see the following reference for further details of the study results:

Morales D, Pacurariu A, Slattery J, Pinheiro L, McGettigan P, Kurz X. Association Between Peripheral Neuropathy and Exposure to Oral Fluoroquinolone or Amoxicillin-Clavulanate Therapy. JAMA Neurol. 2019 Apr 29. doi:10.1001/jamaneurol.2019.0887.