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Case Report

A Case of Bilateral Sensorineural Hearing Loss with Oral Fluoroquinolone Use

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1. Introduction

Fluoroquinolones represent a pharmacologically potent and extensively utilized class of antibiotics. Notwithstanding their widespread application, prudence is imperative, given the profound and potentially transformative nature of associated side effects[1-3]. This case study elucidates the clinical presentation of a 57-year-old male, burdened by multiple comorbidities, who precipitously developed bilateral sensorineural hearing loss (SNHL) after a singular oral administration of the fluoroquinolone levofloxacin. Against the backdrop of an intricate medical history, the expeditious onset of this infrequent complication underscores the imperative to scrutinize the safety profile of fluoroquinolones[4,5]. The investigation navigates through diagnostic intricacies, therapeutic modalities, and the broader ramifications of fluoroquinolone-induced SNHL. Emphasis is placed on the vital necessity for judicious patient counseling and expeditious consultation with otolaryngology. This illustrative case accentuates the uncommon yet potentially life-altering manifestation of SNHL as an adverse effect, thereby advocating for circumspection in the utilization of fluoroquinolones.

Case

A 57-year-old man with diabetes mellitus type II, coronary artery disease, cerebral vascular accident and alcohol use disorder presented to the emergency department (ED) with sudden bilateral hearing loss. Two days prior, he was evaluated in the ED for left groin and testicular pain and discharged on levofloxacin. Patient returned to the hospital, reporting sudden hearing loss after his first dose of levofloxacin, as well as testicular pain. He denied any recent trauma to his ears, exposure to loud noise, otalgia, otorrhea, recent viral illness, tinnitus, or vertigo. Review of his medication did not reveal any recent exposure to ototoxic medications[6].

Routine laboratory studies revealed leukocytosis (25.7k/cmm), chronic stable normocytic anemia (11.8g/dl) and thrombocytosis (397K/cmm). Otologic examination by otolaryngology (ENT) wasunremarkable except for inability to hear tuning forks and acute reduction in hearing acuity.

Audiogram revealed bilateral sensorineural hearing loss (SNHL). MRI of the brain did not showany acute intracranial process. On hospital day one, blood cultures revealed growth of gram- positive cocci; ultimately speciated as methicillin sensitive staphylococcus aureus (MSSA).

Patient underwent three weekly trans tympanic steroid injections during his hospitalization withmild improvement in his hearing. His bacteremia was treated with an intravenous nafcillin course[7].

Discussion

Fluoroquinolones (FQ) are a popular class of antibiotic due to their wide-ranging activity against community gram positive and negative bacteria. The Food and Drug Administration (FDA) has issued its strongest warning and recommended limiting use of FQ to patients who have no other treatment options due to increasing bacterial resistance and serious safety issues. These potentially permanent side effects can involve tendons, muscles, joints, nerves, and central nervous system. We report a case of SNHL which developed suddenly after apatient took one dose of oral fluoroquinolone. FQ are known to be ototoxic and can result in lessthan 1% of patients developing tinnitus. Rarely, patients taking fluroquinolones will develop SNHL, typically from the use of fluroquinolone drops into the external ear canal. Based

on our literature review, SNHL from oral intake of FQs is even rarer. In cases when cause for SNHL remains undetermined, routine serologic tests for infection or autoimmune causes are not recommended in the absence of clinical suspicion for a specific etiology. Autoimmune work up including evaluation for metabolic risk factors such as diabetes, hyperlipidemia, thyroid dysfunction could be considered. The cornerstone of therapy is steroid therapy, which can be administered via oral, intratympanic or combined steroid. Our patient received intratympanic injections due to an active infection. Recovery from SNHL is gradual and can take up to four to five weeks following drug withdrawal. Early initiation of therapy, ideally withing two weeks of onset of hearing loss, yields a higher likelihood of response. The rate of complete recovery is unknown. In conclusion, FQ associated SNHL is a rare but life altering, potentially permanent side effect. Counseling patients on the risk and signs of SNHL and timely consultation of ENT toinitiate therapy are critical for best outcomes.

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