2401. Risk Factors for Antimicrobial Resistance in Invasive Pneumococcal disease (IPD) in Toronto, Canada, 2012–2017

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Background. Several studies have documented factors predictive of antimicrobial resistance (AMR) in invasive pneumococcal disease(IPD). However, the implementation of routine pediatric PCV programs, antimicrobial stewardship, and increasing immunocompromised in populations might be expected to change such factors. We report on predictive factors for AMR in IPD from 2012 to 2017.

Methods. TIBDIH performs population-based surveillance for IPD in Toronto/ Peel (pop 4.5M). IPD cases are reported to a central office and one/isolated case is sero-type and has antimicrobial susceptibility testing performed by broth microdilution to CLSI standards.

Results. 2459 cases of IPD were identified from January 2012 to December 2017. Overall rates of resistance to penicillin, macrolides, fluoroquinolones, and TMP-SMX were relatively stable over the course were stable over the study. Risk factors for infection resistant to penicillin at menigitis breakpoints as opposed to penicillin- susceptible pneumococci were current residence at nursing home (odds ratio [OR], 2.30; P < 0.001), immune compromised status (OR, 1.41; P = 0.012), HIV infection (OR, 2.13, P = 0.016), history of receiving PV23 vaccine (OR 1.38; P = 0.007). Infection with TMP-SMX-resistant pneumococci was associated with HIV infection (OR, 3.2; P = 0.001) and current residence in a nursing home (OR 2.4, P = 0.002). Infection with macrolide-resistant isolates was associated with any use of macrolide 3 months prior to infection (OR, 3.24; P < 0.001), or macrolide treatment failure of the current episode (OR, 6.64; P = 0.003). Infection with levofloxacin-resistant pneumococci was associated with current residence in a nursing home (OR, 13.7; P < 0.001), and fluoroquinolone treatment failure of the current episode (OR 49.4, P = 0.0034).

Conclusions. Previous same class antibiotic exposure remains a major predictive factor for macrolide resistance. History of treatment failure is a predictive factor for macrolide and fluoroquinolone failure. HIV infection and immune compromise are risk factors for IPD infection with penicillin resistant pneumococci. Hospital acquisition of infection is no longer a risk factor for fluoroquinolone resistance.

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2402. Daptomycin Pulmonary Eosinophilia: Review of Cases and New Hypersacate Syndrome Presentation

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Background. Daptomycin pulmonary eosinophilia (DPE) has been described as a rare event. Since the Food and Drug Administration (FDA) first described the syndrome 20 years ago, 15 cases have been reported with recurrent exposure to daptomycin. Hospitalized patients with a diagnosis of DPE have been successfully treated with oral prednisone 20–40 mg daily.

Methods. Retrospective review from local VA pharmacy and OPAT database of adverse drug events (ADE) with daptomycin from 2010 to April 2018. Data evaluated include, age, gender, weight, body mass index (BMI), daptomycin dosing, indication for use, duration of therapy, time to symptom onset, Creatinine clearance, white cell count, and eosinophilia. These cases were compared to WSU, Seattle and PCC, Seattle report of 3 cases of DPE.

Results. There were 36 unique diagnoses of Daptomycin in the time period. There were 17 DPE (%) and 3 CPK (0.6%) events in that time period. The median for all ADEs: Age 68 years (range 55–95), BMI 29 mg/kG (range 21–49.5), daptomycin dose 500 mg (>7 mg/kg), baseline CrCl 35.5 mL/minute, eosinophilia at onset of DPE 9% (14–64%), and duration of therapy to onset was 21 days (1–33). All recovered on removal of daptomycin, but 5 patients required adjunctive corticosteroid therapy. Four patients had a severe and novel hypereosinophilic syndrome which manifested with eosinophilia of the daptomycin therapy. All 4 patients had prior exposure to daptomycin in the last 12 months. They presented with hypeoxic respiratory failure, abnormal chest x-rays and/or CT chest scans, with preceding systemic fevers and fatigue after the first dose. All had low grade (Sees 3–5%) on prior use, and all recovered rapidly with discontinuation of daptomycin.

Conclusions. DPE may be underreported and is associated with doses of 500 mg or >7 mg/kg, with CrCl <35 mL/minute and older age. Of concern are the new cases of hypereosinophilic syndrome within 48 hours of re-exposure to daptomycin that we have seen, who had prior low grade eosinophilia. Close monitoring of these factors may be warranted in risk individuals.

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