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O0277 More targeted use of oseltamivir and in-hospital isolation facilities after the implementation of a rapid molecular diagnostic panel for respiratory viruses in immunocompromised adult patients

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Background: Immunocompromised adults are vulnerable to a complicated course of viral respiratory tract infections and often need hospitalisation, especially during the respiratory viral season. Evidence on the effect of the implementation of rapid molecular diagnostics for viruses on oseltamivir and antibiotic use and other clinical outcomes in immunocompromised patients, is lacking.

Materials/methods: We performed an observational before-after cohort study during two consecutive respiratory viral seasons. We included immunocompromised adult patients presenting at the emergency department (ED) of a tertiary university hospital with clinical suspicion of respiratory tract infection. During the first season (2016/2017), respiratory viruses were detected using in-house real-time PCR (RT-PCR). During the second season (2017/2018), we implemented a diagnostic algorithm including a rapid molecular diagnostic test for 15 respiratory viruses (FilmArray®). The effect of this implementation, on empirical antibiotic, antiviral prescriptions and need for isolation, was assessed using multivariable analyses.

Results: We included 192 immunocompromised adult patients during the first and 378 during the second season (n=570). Respiratory viral diagnostics was performed in 135 patients (70%) during the first season and 284 (75%) during the second season (p=0.218), of which 213 (75%) using the rapid test. More viruses were detected during the second season (n=169, 45%) as compared to the first (n=61, 32%) (p=0.004). After implementation of the rapid test, adequate use of oseltamivir improved, with both less prescriptions in influenza virus negative patients (adjusted odds ratio 0.15, 95%CI 0.08-0.28) and more in influenza virus positive patients (11.13, 95%CI 1.75-70.86). Furthermore, the use of in-hospital isolation facilities was reduced (0.35, 95%CI 0.19-0.64). No effect was observed on empirical antibiotic use (0.83, 95%CI 0.51-1.36), hospital admissions (0.87, 95%CI 0.54-1.41) and length of hospital stay (1.00, 95%CI 0.83-1.21). ED stay was slightly prolonged during the second season, 3:43 hours (95%CI, 2:51–4:29) vs 4:01 hours (95%CI, 3:07 - 5:10). We observed no effects on safety outcomes.

Conclusions: Implementation of in-hospital rapid molecular diagnostics for respiratory viruses in adult immunocompromised patients results in more targeted use of oseltamivir and in-hospital isolation facilities. The use of these rapid molecular diagnostics as standard diagnostic test could therefore be recommended for these patients.