

Comparison of RSV and influenza infection in ICU patients - the CAPTIF study

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Theme:

- Infection and inflammation

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Rational :

Respiratory syncytial virus (RSV) is a common cause of pediatric bronchiolitis and influenza-like illness in adults. Its involvement in severe infections in adults remains unclear.

The CAPTIF study aimed to compare the characteristics and prognosis of ICU patients infected with RSV and influenza, assuming that, based on the limited evidence, the mortality of RSV infection would be lower than the influenza related one.

Patients and Methods or Material and Methods :

Multicenter Franco-Belgian retrospective study. Adults admitted to 18 ICUs between 1/11/2011 and 30/04/2017 with respiratory RSV infection were included and matched 1:1 to influenza patients on center and ICU admission date. Patients' characteristics, clinical presentation, and outcome were compared between groups using univariate and multivariable analyses

Results :

We report here the results for the first 470 cases among 650 included patients .

Mean age was 65,5 (16,7) years and SAPS-2 score was 42 (17), not different between groups. Compared to influenza patients, RSV patients more frequently had chronic respiratory failure (61% vs 39%, $p < 0,001$) or immune suppression (36 vs 26%, $p = 0,03$). Frequencies of cardiac, renal and hepatic chronic diseases were similar.

Almost all patients had respiratory symptoms (>95%), extrapulmonary symptoms were more frequent in influenza patients (9 vs 15%, $p = 0,04$). RSV patients more frequently had bronchospasm (51 vs 36%, $p = 0,001$). ARDS (20%), shock (30%) and pulmonary coinfection (32%) at diagnosis frequencies were similar, however SOFA score was higher in influenza patients (4,6 (3,4) vs 5,6 (4), $p = 0,004$). The P/F ratio was around 210 mmHg in both groups, PaCO₂ was higher in RSV patients (55 vs 47 mmHg, $p < 0,001$). Respiratory assistance at diagnosis tended to differ ($p = 0,06$), the RSV patients receiving more NIV (29 vs 19%) and less high flow therapy (10 vs 14%) but invasive ventilation was required similarly (36 vs 33%). During ICU stay, ARDS was more frequent in influenza patients (21 vs 30%, $p = 0,03$), accordingly prone position (1,3 vs 4,3%) and ECMO (2,5 vs 9,1%) were more frequently needed. Length of mechanical ventilation (2d (0-8)) and ICU LOS (5d (3-12)) were not different. ICU mortality was similar in VRS and influenza patients (18,4% and 21,3%), the multivariate analysis did not find an association between type of virus and mortality.

Discussion :

Conclusion :

RSV infection is frequent in adult ICU patients. It presents more frequently than influenza as an acute on chronic respiratory failure with bronchospasm. Despite difference in case mix and clinical presentation, VRS severity and burden appear similar to influenza justifying effort to prevent and treat it.

CONFLICTS OF INTEREST

Conflicts of interest in the last three years, with the following companies :

- Research support/Scientific studies: No
- Consultancy, Expert: No
- Trainings, Teaching: Alexion
- Advertising documents: No
- Invitation to national or international congresses: MSD
- Stock shareholder: No
- Patent or product inventor: No

COMPLIANCE

Compliance with ethics regulations : Yes