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Concordance between clinical and epidemiological diagnosis of tracheobronchitis and ventilator associated pneumonia in Complexo Hospitalario Universitario de Pontevedra (Spain)

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Introduction: Although tracheobronchitis (VAT) and ventilator-associated pneumonia (VAP) are two different clinical entities, they have some factors in common in terms of clinical and microbiological diagnosis, treatment and prognosis. The result of the evaluation of patients with these type of ventilator-associated respiratory infections can be interpreted differently if clinical and epidemiological factors are considered.

Objectives: To describe the concordance between clinical and epidemiological diagnosis, and, as a secondary objective, to know the clinical and epidemiological characteristics as well as the rates of VAT and VAP.

Methods: Retrospective and descriptive study carried out between 1st May 2015 and 31st October 2017 of patients admitted to our Intensive Care Unit (ICU). Sources: ENVIN-UCI study, Department of Preventive Medicine, electronic medical record and retrospective review of imaging studies by radiology specialist. Parameters analyzed: age, gender, date of admission, intubation and discharge, comorbidities, microorganisms, antibiotics, associated infections and mortality. Statistical analysis: qualitative values (presented as absolute and percentages), quantitative values (presented as mean and standard deviation). Concordance between clinical diagnosis (data from ENVIN-UCI) and epidemiological diagnosis (data from Department of Preventive Medicine) was measured using kappa coefficient.

Results: 290 patients needed mechanical ventilation (MV) with 4523 stays (patients x mean days under MV). VAP rate: 3,98 and VAT rate: 10,39. ICU infections: 65 (18 VAP, 47 VAT) and according to Preventive Medicine: 43 (19 VAP and 24 VAT). In imaging studies reviewed by radiology specialist, coincidence with ICU diagnosis was found in 70% of the infections and in 60% of diagnosis made by Preventive Medicine. The concordance observed between clinical and epidemiological diagnosis in VAT and VAP according to Landis and Koch was: moderate in VAP (kappa value: 0,56; CI 95%: 0,35-0,78) and fair in VAT (kappa value: 0,32; CI 95%: 0,13-0,51). In the bivariate analysis, relationship was only found between concordance and length of stay.

Conclusion: Moderate agreement was observed in VAP and fair in VAT. None of the parameters studied were associated with no concordance, except for the length of stay

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Infectious complications in ICU patients with SARS COV 2 respiratory infection

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Introduction: Many critically ill patients infected with SARS COV 2 have worse clinical course or die in ICU due to secondary infections.

Objectives: The aim of the present study is to describe the infectious complications in patients admitted in ICU with confirmed respiratory infection by Sars-Cov-2, and to assess factors related with these complications

Methods: Retrospective case series of consecutive critically ill patients admitted in ICU of a community hospital with severe pneumonia caused by SARS COV 2. Microbiological analysis of bronchoscopic bronchoalveolar lavage (BAL), urine antigen, PCR for Influenza and blood cultures were performed at ICU admission. We categorized infections as coinfections, within the first 72 hours in ICU, and those with a later onset. We analyzed if the use of corticoid therapy was related with developing infectious complications. Medical history, microbiological cultures, ICU length of stay and mortality were collected. Statistical analysis: Data was analyzed by SPSS 18 and quantitative variables were expressed as a mean ± standard deviation.

Results: Twenty patients were included. Mean age was 61,7±8 years old. 80% required mechanical ventilation. Mortality was 30%. Positive PCR SARS COV 2 resulted in 100% of BAL samples. Pneumococcal urine antigen test and Influenza resulted negative in all cases.

ICU length of stay was significantly longer in patients who developed bacterial infections; 20,11±11.4 days vs 10.5 ± 7.29 days in the non-infected group (p<0,05). Regarding fungal infections, ICU length of stay was longer in infected 23.5 ± 10.36 days vs 11.27 ±8.3 (p<0,05).

In seven patients, 35%, BAL performed at ICU admission resulted positive: 2 patients with *Staphylococcus*, 3 with *Candida spp.* and 2 cases with bacterial/fungal co-infection. *Candida* isolation was associated with previous corticosteroid treatment.

During the ICU stay, 56,25%, developed ventilator associated pneumonia caused by *Candida spp*, *Pseudomona aeruginosa*, *Klebsiella aerogenes*. 30% developed urinary tract infection, half of these cases due to *Candida spp*. In 30% it was described as bacteremia and 10% presented catheter-related bloodstream infection.

	Previous corticosteroid n: 10	No corticosteroid n:10
Fungal infection	1	1
Fungal + Bacterial infection	5	3
Bacterial infection	1	2
No infection	3	4

Dividing the described infections by previous corticosteroids use: The most frequent isolation were *Candida spp* 10 (*C albicans* 7+*C parapsilosis* 2+*C guilliermondii* 1), *Pseudomona aeruginosa* 7, *Enterococcus faecalis* 5, *Klebsiella spp* 4 and *Staphylococcus aureus* 4.

Conclusion: Fungal infections were frequent in critically ill patients with SARS COV2 infection, probably related with corticosteroid therapy.

ICU length of stay was associated with more incidence of infections. Gram positive predominate first days of ICU admission and gram-negative infections in the later phase of ICU stay.

Health care associated infections were more frequent than co-infection.

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No