

Outcome comparison between 1st and 2nd pandemic wave in patients with Sars-Cov-2 pneumonia treated with CPAP Helmet in non intensive care wards in Varese: Observational Retrospective Study

Authors: F. Ferrari*, D. D'Onofrio*, M. Da Macallè*, A. Pollastri, G. Selmo*, L. Guzzetti*, G. Rossini*, S. Cozzi*, L. Ghislanzoni*, F. Marangoni*, M. Carollo*, C. Lanza*, A. Marcato*, F. Toso*, S. Biasoli*, F. Martignoni* and A. Bacuzzi*

* Department of "Anesthesia and management of operating rooms" of Circolo Hospital, Varese, Italy

Background: Since the end of February 2020, Sars-Cov-2 virus has spread in the world through a series of epidemic waves. This work compares the hospital mortality between patients hospitalized for respiratory failure due to Covid-19 in Varese during the 1st and 2nd waves.

Method: We considered patients with respiratory failure caused by Sars-Cov-2, treated with CPAP helmet during the 1st epidemic wave (02/2020 - 04/2020: 163 patients) and the 2nd one (10/2020 - 01/2021: 471 patients), who were hospitalized in non-intensive Covid wards of Circolo Hospital (Varese). We compared the expected death values, gained from "4C mortality score", and the actual death values (whose difference had statistical significance by "Chi-square test") of both samples; then mortality was stratified by age.

Results: Expected mortality of the two samples was higher (61.5-66.2%) than actual mortality (31% 1st wave, 43% 2nd one). The graphs illustrate the comparison between the distribution of survived patients (orange) and dead ones (blue) as a function of age.

Discussion: In our sample mortality values were higher during the 2nd wave (43%) than in the 1st one (31%). These data are at odds with the literature, whereby the 1st wave was the most lethal; it may be explained by the huge incidence of new covid cases (over 250 daily cases / 100 thousand inhabitants) in Varese during the 2nd wave. Furthermore, almost all of the hospitalized patients had the Sars-Cov-2 Delta Variant, characterized by high mortality and a more serious clinical presentation in emergency room (P/F = 240: 1st wave vs. P/F = 134: 2nd wave - Pvalue <0,001). In both graphs mortality rate is higher in subjects "over 70 years", although some cases are also recorded in the "50-70 years" age group. These data agree with the literature, for which advanced age is associated with a poor prognosis.

1st and 2nd wave: distribution of survived (orange) and dead (blue) patients as a function of age

