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

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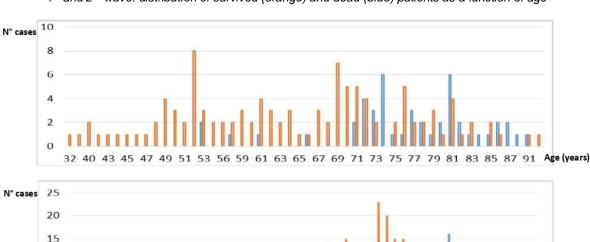
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Background: Since the end of February 2020, Sars-Cov-2 virus has spread in the world through a series of epidemic waves. This work compares the hospital mortality between patients hospitalized for respiratory failure due to Covid-19 in Varese during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



18 30 34 37 40 45 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 83 85 87 89 91 Age (years)

10

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