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Civico Di Cristina Benfratelli

Clinical and laboratory characteristics of hospitalized patients for COVID-19: a comparison between patients under and over 65

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ABSTRACT

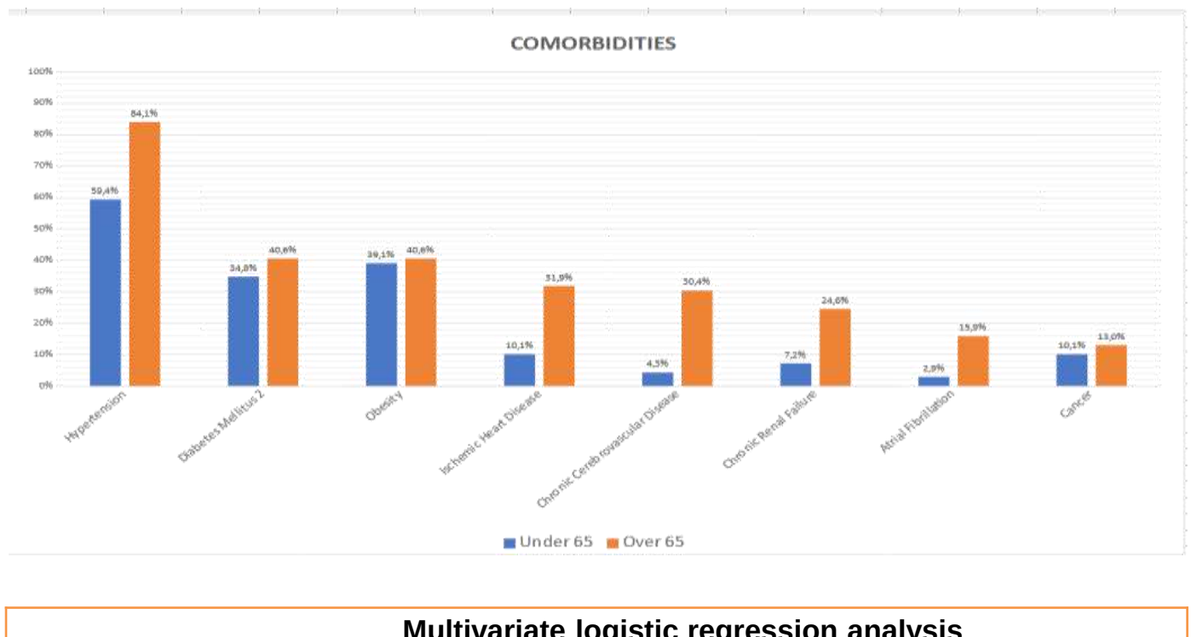
IINTRODUCTION CoVID-19 pandemic poses a threat to global health. This disease can occur with different clinical manifestations and outcomes, but its exacerbation and patient death are closely related to the behavior of the immune system, which plays a crucial role against SARS-CoV-2, with significant differences between severe, hospitalized, paucisymptomatic and asymptomatic subjects. From the first description of COVID-19, it was clear that disease severity appears to be greater among elderly patients with significant comorbidities. Although an effective immune response against SARS-CoV-2 depends on both, innate and adaptive immunity, many immunological features have not been fully understood

AIM The purpose of this study was to perform,, a comprehensive evaluation of clinical, laboratory, and characteristics of hospitalized patients for COVID-19.

METHODS A longitudinal cohort study was carried out at the COVID Unit of the Department of Internal Medicine of the A.R.N.A.S. Civico Di Cristina-Benfratelli Hospital in Palermo. Written informed consent was obtained from all patients at the moment of their admission. From March 16, 2020, to April 2, 2021, data on the medical history of 149 patients, clinical, biological, immunological variables, P/F ratio detected at blood gas analysis, and the mode of administration of oxygen therapy were collected. The variables under study were compared by cluster analysis between two groups of patients hospitalized for COVID-19, under and over 65 years of age.

RESULTS 76 patients were under 65 years old and 73 patients were over 65 years old. 64.5% and 60% were male, respectively. A higher proportion of subjects with hypertension, diabetes mellitus 2, obesity, ischemic heart disease, cerebrovascular disease, chronic renal failure, atrial fibrillation and cancer were observed in the over-65 group. Because of severe hypoxemia, 2.8% of patients under 65 years of age and 13% of those over 65 years of age required a transfer to intensive care unit/ICU. The average length of hospitalization was 18.5 days. The mortality rate was 4.1% in patients under 65 years old and 14.3% in geriatric patients. The percentage of under-65 patients with blood gas P/F (PaO2/FiO2) values below 200 was 22.6% compared to 45.7% of the over-65 patients. CPAP ventilation mode was found in 12.7% of patients under 65 years old and 20% of patients over 65 years old; on the other hand, the requirement for NIV support was 8.4% in patients under 65 years old and 10% in patients over 65 years old. C-reactive protein and D-dimer values were higher in the over-65 group than the under-65 group.
From multivariate logistic regression analysis with death outcome and independent variables of age and sex, Odds Ratio>1 values showed that the variable age is a predictive of death. From the data analysis of this study, the probability of a person to die as age increases rises by 8%. Even more significant and predictive is the variable Gender. In our case, male sex increased the probability of death by more than 6 times.

CONCLUSION patients over 65 years were found to be the most compromised population, more concomitant causes could explain the course of the disease, which was shown to have a more dismal prognosis. This detailed analysis of immune changes may have prognostic value. It could provide a new perspective to identify subgroups of COVID-19 patients and select new potential treatment strategies but further studies are needed to further investigate the cytofluorimetric pattern compared to other variables.



Multivariate logistic regression analysis

Death	Odds Ration	[95% conf. Interval]	p
Age	1,08	1,03-1,14	0,003
Gender	6,39	1,25-32,77	0,026



Biography
Dr Marika Lo Monaco has her expertise in nursing, internal medicine and rheumatology.
Researcher at the University of Palermo in Italy, she is a professor in the field of research methodology.
Speaker at national and international conferences, she has won awards for her research activity.
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COMPARING GENERAL CHARACTERISTICS BETWEEN PATIENTS OVER AND UNDER 65

	< 65 (N=76)	≥ 65 (N=73)	p
Men (%)	64,5	60,0	0,1703
Age*	55 (48,5 - 60)	75 (69,5 - 81,5)	<0,0001
Days of Hospitalization *	18 (13 - 24)	19 (12 - 30)	0,2056
Transfer to Intensive Care Unit ICU(%)	2,8	13,0	0,0231
Death (%)	4,1	14,3	0,0343

COMPARING BLOOD GAS ANALYSIS VALUES BETWEEN PATIENTS UNDER AND OVER 65

	< 65 (N=76)	≥ 65 (N=73)	p
$P/F_{admission\ <100}$ (%)	9,9	11,4	0,7625
$P/F_{admission\ 100-200}$ (%)	12,7	34,3	**0,0024**
$P/F_{admission\ 200-300}$ (%)	32,4	20,0	0,0944
$P/F_{admission\ >300}$ (%)	43,7	34,3	0,2538

COMPARING OXYGEN THERAPY BETWEEN PATIENTS OVER 65 AND UNDER 65

	< 65 (N=76)	≥ 65 (N=73)	p
RA (%)	39,4	34,3	0,5262
Ncann (%)	9,9	10,0	0,9777
Venturi (%)	28,2	25,7	0,7426
CPAP (%)	12,7	20,0	0,2392
NIV (%)	8,4	10,0	0,7505

COMPARING CLINICAL AND LABORATORY CHARACTERISTICS OF PATIENTS OVER AND UNDER 65

	< 65 (N=76)	≥ 65 (N=73)	p
Hb (gr/dl) admission	13,2 (11,8 - 14,8)	12,8 (11,6 - 14,2)	0,2821
Hb (gr/dl) discharge	12,5 (10,9 - 14)	11,9 (11,1 - 13,4)	0,1311
WBC (cell/uL) admission	6620 (4940 - 9350)	7520 (5190 - 10625)	0,4879
WBC (cell/uL) discharge	7750 (6260 - 9090)	8910 (6540 - 11680)	0,0981
NEUT (cell/uL) admission	3160 (4,07 - 6070)	5795 (3005 - 7920)	0,1175
NEUT (cell/uL) discharge	2840 (5,16 - 4850)	5820 (2250 - 8250)	0,0130
LYM (cell/uL) admission	450 (1,29 - 1090)	815 (640 - 1255)	0,6022
LYM (cell/uL) discharge	950 (1,97 - 1930)	1285 (850 - 1730)	0,6321
PLT (cell/µL) admission	254 (195 - 309)	243 (168,5 - 298)	0,2259
PLT (cell/µL) discharge	287 (194 - 378)	242 (184 - 366)	0,0965
PCR (mg/dl) admission	3,32 (1,12 - 6,76)	5,7 (2,1 - 10,9)	0,0846
PCR (mg/dl) discharge	0,36 (0,12 - 0,76)	1,5 (0,3 - 5,1)	**<0,0001**
D-Dimer (ng/ml) admission	670,5 (454 - 1217)	1049 (634 - 1974)	**0,0013**
D-Dimer (ng/ml) discharge	592,5 (292 - 939)	832 (434 - 2080)	**0,0023**

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