

MAPPING OF PHARMACOLOGICAL RISK FACTORS AND COMORBIDITY IN PATIENTS WITH SEVERE COVID-19: A RETROSPECTIVE OBSERVATIONAL CASE-CONTROL STUDY

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Background

From the end of 2019, Corona virus spread all over the world causing big difficulties for healthcare systems and millions of deaths. Understanding risk factors is crucial both for prevention and protection of "fragile" categories but also for understanding biologist mechanisms and drugs able to cure it.

Aim and objectives

The primary objective is to find the pharmacological and physical conditions risk factors that induce a higher incidence of severe Covid infections. The secondary objectives are to analyse patients' comorbidities and to provide and assist home doctors to identify the ideal candidate for Covid-19 for additional control.

Materials and methods

The retrospective observational case-control study compares 789 patients hospitalized from March-2020 to February-2021 at the COVID-hospital of Jesolo (VENICE) with severe Covid-19, with 789 disease-free patients. The comparison of home drug therapies between the two groups was performed with database extractions of prescriptions (Datamanagement) in the year preceding the pandemic (Mar19-Feb20) and classified by ATC. Patients' medical records were viewed for personal data (age, blood group, obesity-BMI, ..). The obesity index is expressed as BMI, compared to the BMI value calculated on the population of the Veneto Region (ISTAT report). All data have been stratified and statistically analysed by odds ratio (OR), confidence interval (CI) and p-value, using Woolf-method and approximated Z-test.



Results

Of the hospitalized patients 19,4% took antidiabetic drugs versus 11,3% of the control (OR:1,89; CI:1,43-2,51), mainly slow-acting insulin (OR:1,82; CI:1,01-3,28).

Drugs for cardiovascular diseases were taken by 66,2% of the patients compared to 59,4% in the control (OR:1,35; CI:1,10-1,66). More responsible were the diuretics respectively 34,1% vs 26,0% (OR:1,47; CI:1,12-1,94).

Risk factors are strengthened when there are multiple concomitant pathologies, in particular cardiovascular diseases and diabetes, respectively 27,4% vs 17,5% (OR:1,78; CI:1,31-2,42), asthma with 13,0% vs 8,5% (OR:1,61; CI:1,06-2,43) and cancer 5,7% vs 2,8% (OR:2,14; CI:1,10-4,15).

The patients with the physical conditions of obesity (BMI>30) had an incidence of accesses in intensive care four times higher than the regional average (40,0% vs 11,2%, CI:1,38-21,10).

CASES OF DEAD PATIENTS RELATING TO GENDER AND AGE

GRUPS	TOTAL	18-39	40-49	50-59	60-69	70-79	80-89	90+
PATIENTS RECOVERED	789	14	56	101	174	189	193	62
MALE	471	10	42	69	113	116	101	20
FEMALE	318	4	14	32	61	73	92	42
NUMBER OF DEAD PATIENTS	170	0	0	9	17	51	69	24
DEAD MALE	101	0	0	2	11	36	42	10
DEAD FEMALE	69	0	0	7	6	15	27	14
% DEAD MALE	59,4%	0,0%	0,0%	22,2%	64,7%	70,6%	60,9%	41,7%
% FEMALE DEAD	40,6%	0,0%	0,0%	77,8%	35,3%	29,4%	39,1%	58,3%

PHARMACOLOGICAL RISK FACTORS

Category of drug	Hospitalized patients (case group)	Disease-free patients (control group)	Odds ratios with 95% Wald confident limits
Antidiabetics	19,4%	11,3%	1,89 (1,43-2,51)
Cardiovascular diseases	66,2%	59,4%	1,35 (1,10-1,66)
Diuretics (for cardiovascular disease patients)	34,1%	26,0%	1,47 (1,12-1,94)
Cardiovascular diseases and diabetes	27,4%	17,5%	1,78 (1,31-2,42)
Asthma	13,0%	8,5%	1,61 (1,06-2,43)
Cancer	5,7%	2,8%	2,14 (1,10-4,15)

REPORT OF OBESE PATIENTS (BMI>30) HOSPITALIZED IN INTENSIVE CARE

NUMBER OF PATIENTS	OBESE PATIENTS (BMI >...)	NON OBESE PATIENTS	% OBESE	% OBESE IN REGION OF VENETO	IC % OBESE	p VALUE
134	38	95	40,0%	11,2%	1,38 - 21,10	< 0,01

Conclusion

The difference in the chronic pathologies and comorbidities in the groups allowed us to define the profile of the clinical and genetic risk factors of the patient most at risk of infection Covid-19 and which must be subject to additional control by home doctors.

