

A1 Which individual factors increase the risk of mortality? An analysis of epidemiological data from Aveiro region.

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Introduction

The first case of COVID-19, a disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was identified in Portugal on March 2, 2020 [1].

Previous studies have shown that male sex, older age, smoking, underlying comorbidities and symptoms of dyspnea increase the risk of death from COVID-19 [2,3]. Thus, recognizing the patient-at-risk characteristics for evolution to death is important to define strategies and support preventive interventions [4, 5].

In this study, we aim to describe the demographic and clinical characteristics associated with mortality by COVID-19 in Agrupamento de Centros de Saúde (ACES) Baixo Vouga (Aveiro region).

Methods

We conducted a cross-sectional, retrospective study with all COVID-19 confirmed cases in ACES Baixo Vouga, from March 8 (first case in Aveiro region), 2020 until December 29, 2020. We used anonymized, secondary data, of the epidemiological investigation previously collected by the local Public Health Unit. Age, sex, comorbidities, symptoms and smoking habits were considered as predictors of mortality. The model was adjusted for some of the symptoms reported, municipality of residence and institution (nursing homes or schools). Association between the mortality and age was tested using the Wilcoxon test, while chi-square was used to test the association between mortality and other categorical variables. A logistic regression was performed to model the data. A 5% significance level was used throughout all the analysis. Odds Ratio (OR) and CI (confidence interval) were used.

Results

In the bivariate analysis, age, sex, comorbidities, smoking habits, some symptoms (fever, non-productive cough, headaches, rhinorrhea, dyspnea, anosmia, dysgeusia), municipality of residence and institution showed a statistically significant association with mortality. All the previous variables were initially included in the multivariable regression model. Dyspnea (OR 4.81, CI95 1.49-14.6) was the only symptom associated with mortality. Age (OR 1.07), male sex (OR 5.34), and comorbidities (OR 9.33), were also significantly associated with the main outcome. A final optimized model including only age, sex, comorbidities and dyspnea, identified the four variables as risk factors for mortality (Table 1).

Table 1 - Results for logistics regression model for the outcome death.

Characteristic	*Univariable analysis			Multivariable analysis*		
	OR ¹	95% CI ¹	p-value	OR ¹	95% CI ¹	p-value
Age	1.08	1.06, 1.11	<0.001	1.06	1.04, 1.10	<0.001
Sex (Male)	5.72	2.36, 17.0	<0.001	6.92	2.76, 21.2	<0.001
Comorbidities (Yes)	19.4	6.81, 81.6	<0.001	4.86	1.50, 22.0	0.017
Dyspnea (Yes)	7.28	2.82, 16.7	<0.001	4.11	1.44, 10.6	0.005

¹OR = Odds Ratio, CI = Confidence Interval

Discussion

As expected, according to previous literature, our results showed that older people, male sex, and people with comorbidities and dyspnea had a higher risk of mortality [5]. With risk of death increasing 6% per each year of age. On the other hand, our results were contradictory with previous literature when it

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Conflict of interest:

The authors declare no conflict of interests

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comes to smoking habits as it was not an explicative factor of mortality [5]. Additionally, belonging to an institution, when adjusted for confounders, did not appear to play an important role in mortality.

These results have some limitations that should be considered. The analysis was made using the cumulative COVID-19 confirmed cases in ACES Baixo Vouga and did not consider the timely variation of the epidemic's characteristics in that area - eg. incidence, transmissibility, prevalence of variants with different virulence, and the characteristics of the affected population in each phase (age, comorbidities).

Ethics committee and informed consent

This study used a secondary data source, containing anonymous information. It was conducted in accordance with the Declaration of Helsinki.

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