COVID-19 mortality risk factors in older people in a long-term care center

Eva Heras

Servei Andorrà Atenció Sanitària

Pablo Garibaldi

Servei Andorrà Atenció Sanitària

Maite Boix

Servei Andorrà Atenció Sanitària

Oliver Valero

Universitat Autonoma de Barcelona

Jorge Castillo

Servei Andorrà Atenció Sanitària

Yurisan Curbelo

Servei Andorrà Atenció Sanitària

Elso Gonzalez

Servei Andorrà Atenció Sanitària

Obilagilio Mendoza

Servei Andorrà Atenció Sanitària

Maria Anglada

Servei Andorrà Atenció Sanitària

Joan Carles Miralles

Servei Andorrà Atenció Sanitària

Petra Lllull

Servei Andorrà Atenció Sanitària

Ricard Llovera

Servei Andorrà Atenció Sanitària

Josep M. Pique

Servei Andorrà Atenció Sanitària

Research Article

Keywords: COVID-19, older people, mortality, risk factors, long-term care

---

Abstract

Objectives: Despite high rates of COVID-19 infection and increased related mortality have been reported among older adults admitted in long-term care facilities, a limited amount of information is available about the natural course of this pandemic and prognostic factors in this population. In the current study, we aimed to investigate the epidemiologic, demographics, clinical, or therapeutic factors that may predict the prognosis in a cohort of COVID-19 infected elderly in a nursing home.

Methods: We conducted a retrospective analysis of all COVID-19 confirmed institutionalized elderly in a nursing home transformed into a reference intermediate healthcare facility from March 15 to June 5, 2020. Epidemiological, demographic, and frailty status before infection, and clinical, laboratory, treatment, and outcome data during infection were collected. We used bivariate analysis and multivariate logistic regression to identify risk factors for mortality.

Results: The analysis comprised all 100 COVID-19 confirmed cases during the study period. The median age was 85 years; 62% were female. The case fatality rate was 20%. In the bivariate analysis, male gender, fever, respiratory symptoms, severe cognitive decline, a low Barthel index, and lymphocytopenia were significantly associated with mortality. Multivariate logistic regression analysis identified male gender, low Barthel index, no pharmacological treatment, and lymphocytopenia as independent risk factors associated with mortality.

Conclusions and Implications: Male gender, low Barthel index, no pharmacological treatment and lymphocytopenia are independent risk factors for COVID-19 mortality in institutionalized elderly patients in long-term care nursing homes. Treatment with hydroxychloroquine and azithromycin was associated with lower mortality in these patients.

Introduction

While a great deal of information regarding the evolution of patients with COVID-19 infection[1-10] has been recorded since the onset of novel coronavirus pandemic in hospitals over the world, only a few data have been published up to date regarding the curse of the disease in patients admitted in long-term care facilities[11].

Studies by McMichael T.M. and Aron MM[11,12] from a long-term care facility suggests that nursing home populations (e.g., older adults often with underlying chronic medical conditions) could be especially vulnerable to SARS-CoV-2 infection and at higher risk for COVID-19 associated morbidity and mortality.

In the current study, we aimed to provide information about the clinical evolution of older patients infected by COVID-19 admitted in nursing homes and to identify prognostic mortality factors in such a population.

The study was approved by the Research Ethics Committe.

Methods

Study design

The study was performed at a public nursing home from March 15 to June 5, 2020, identifying all the COVID-19 confirmed patients. This nursing home was transformed into a COVID-19 reference intermediate healthcare facility for the admission of institutionalized seniors considered probable or confirmed cases of COVID-19 from the same center or other nursing homes. To this end, a joint action strategy was settled with all the nursing homes in the country, establishing a referral circuit to support them in the event of an outbreak of COVID-19 disease in their institution. Within 72 hours of detecting the first COVID case, 35 residents from the public nursing home were moved to a hotel to prevent further spread following medical criteria (residents with a low level of functional and cognitive dependence were transferred). In the different serological and PCR controls carried out, only three residents housed in the hotel had COVID-19 infection, and the mortality in this population was null.

Data collection

The following data were recorded for all patients: age, sex, date of admission, mean stay, the origin of the patient, dementia stage, Barthel index, Charlson comorbidity index, previous flu vaccination, clinical presentation, laboratory results, treatment, RT-PCR for SARS-CoV-2, hospital referral, mortality rate, and case fatality rate.

Definitions

Four categories of the patient's origin were defined: the reference intermediate healthcare facility, other nursing homes, home, or hotel.

Dementia was measured by the Global Deterioration Scale (GDS), developed by Dr. Reisberg[13], which consists of seven stages. 1: no cognitive decline, 2: very mild cognitive decline, 3: mild cognitive decline, 4: moderate cognitive decline, 5: moderately severe cognitive decline, 6: moderately severe decline, 7: very severe cognitive decline.

Barthel index[14] is an ordinal scale of functional capacity used to measure performance in daily living activities, with values ranging from 0 (totally dependent) to 100 (totally independent). Proposed guidelines for interpreting Barthel index are: 0-15: totally dependent, 20-35: very dependent, 40-55: partially dependent, 60-75: minimally dependent, 80-100: totally independent[15].

Underlying diseases were considered as the presence of comorbid illness with the age-adjusted Charlson comorbidity index[16], which predicts ten-year survival in patients with multiple comorbidities.

Patients were grouped into three clinical categories: asymptomatic, respiratory symptoms (rhinitis, pharyngitis, cough, expectoration, and dyspnea) and digestive symptoms (diarrhea). Fever was defined as an axillary temperature of at least 37.5°C.

An analytical control was carried out, at least, on the admission and the discharge, recording the presence of lymphocytopenia, anemia, and or thrombocytopenia. Inflammation markers such as CRP, Ferritin, Dimer D, LDH, and troponin were also collected. Lymphocytopenia was defined as a total lymphocyte count of less than $1.0 × 10^9$/L (1000/µL) and thrombocytopenia as a platelet count of less than $150 × 10^3$ per µL. The diagnosis of anemia in men was based on a hemoglobin of less than 13 to 14 g/dL; in women, less than 12 to 13 g/dL.

As for the treatment, five categories were defined: patients who received hydroxychloroquine and azithromycin, only hydroxychloroquine, hydroxychloroquine plus another antibiotic, beta-lactam, or quinolone antibiotics, and no treatment.

We also recorded the percentage of patients with two consecutive (48 hours apart) negative molecular detection results for SARS-CoV-2 from a nasopharyngeal swab after 14 days of treatment with hydroxychloroquine and azithromycin.

Patients whose symptoms resolved and who had two consecutive (48 hours apart) RT-PCR for SARS-CoV-2 negative were considered successfully treated and cured[17].

Four categories of discharge destination were defined: the reference intermediate healthcare facility in non-COVID areas, other nursing homes, home, or death.

The mortality rate associated with COVID-19 in the center was considered as the death rate in the reference intermediate healthcare facility.

The case fatality rate in the reference intermediate healthcare facility is the proportion of deaths from a COVID-19 disease compared to the total number of people diagnosed with the disease admitted in the center.

Statistical analysis

A statistical study has been carried out to identify risk factors for mortality in patients with COVID 19. Bivariate tests have been performed between the qualitative and quantitative variables and the successfully treated variable COVID (yes / no). A chi-squared test was used for categorical variables and the t-test/Mann-Whitney test for quantitative variables. Additionally, bivariate logistic regression models were estimated to obtain Odds Ratios (OR) with their 95% confidence interval. Variables with a p-value lower than 0.05 were included in a multivariate logistic regression model[18] to identify independent predictors of mortality. The final model was obtained after removing all non-statistically significant variables (backward selection procedure). Additionally, a second multivariate regression model was adjusted, including only baseline variables to obtain a score to predict mortality independently of the

effect of pharmacological treatment. ROC curves have been obtained to evaluate the fit of the models, and the AUC has been calculated. The best cut-off point has been determined, and sensitivity and specified values have been obtained. Statistical analyses were performed with the SAS system version 9.4 (SAS Institute Inc., Cary, North Carolina, USA). The statistical significance level was set at 0.05.

Results

The study group comprised 100 COVID-19 confirmed cases with a mean age of 85 (IQR 65-103) years. Sixty-two percent were female, and the average length of stay was 22 days. Fifty-two patients were initially from the public nursing home, 36 came from other nursing homes, nine from home, and three comings back from the hotel.

According to the global deterioration scale for the assessment of primary degenerative dementia, 73% of patients presented dementia, and 91.6% of dead had severe dementia (GDS6- GDS7). Seventy-six percent of patients had some level of functional dependence (Figure 1). Clinically, 57% had respiratory symptoms, and 39% overcome the infection without any symptoms. Blood tests revealed anemia in 36 cases and lymphocytopenia in 38 patients.

Eighty-three percent received pharmacological treatment, mostly with hydroxychloroquine and azithromycin (70%) (Figure 2). Only five patients had diarrhea as a side effect related to hydroxychloroquine. Cardiac monitoring was performed by electrocardiogram, and no rhythm changes were observed with this treatment in any patient.

After 14 days, 12 patients had two negative molecular detection results for SARS-CoV-2 from a nasopharyngeal swab. Seventy-six patients were considered cured, and 24 died, of which four happened in the reference hospital. Thirty-five patients were discharged to non-COVID areas of reference nursing home, 31 to other nursing homes, and nine to home.

The mortality rate associated with COVID-19 only for the original residents of the transformed nursing home was 14% (18 death/125 residents). The overall case fatality rate at this reference intermediate healthcare facility was 20% (20 death/100 COVID-19 residents).

In the bivariate analysis, the following factors showed a significantly greater risk of mortality among COVID-19 patients: male-gender, fever, respiratory symptoms, pharmacological treatment, type of treatment, serum therapy, oxygen therapy, dementia, Barthel index, lymphocytopenia, LDH, and D-dimer (Table 1). No statistically significant differences were observed in Charlson's index, treatment started within 24 hours, anemia, low platelet count, ferritin, CRP, troponin levels, or previous flu vaccination.

In the multivariate regression analysis, the independent risk factors associated with a higher COVID-19 related mortality were: male-gender, type of treatment, Barthel index, and lymphocytopenia (Table 2). Although statistically significant differences were observed between LDH, D-dimer, and mortality values in

the bivariate analysis, (as their levels increase, the risk of mortality increases) they were not included in the multivariate logistic regression due to the high number (20%) of missings in these two parameters.

In order to obtain a score that allows predicting COVID-19 evolution from baseline, a new model was adjusted, excluding pharmacological treatment.

To calculate a prognostic score, the following formula was used:

Score= 1.4* (Sex= "Male") − 0.04* Barthel + 0.9* (Lymphopenia= "Yes")

The higher the score, the higher was the probability of dying. We obtained an AUC of 0.85 (Figure 3). The cut-off point that best ranks between patients who are successfully treated and those who are not cured is 0.2, meaning all those patients with a score higher than 0.2 are most at risk of dying, with a specificity of 79.7% and a sensitivity of 80.0%.

Discussion

With the outbreak of COVID-19, the healthcare service acted quickly and proactively to control the pandemic in nursing homes. The early reaction transforming a public nursing home into an intermediate healthcare facility and moving to a hotel 35 healthy residents with a low level of functional and cognitive dependence from this center, probably avoided excess mortality since none of the people transferred to the hotel died. One hundred COVID-19 elderly patients were admitted to the reference intermediate care nursing home, and they received the same care as they would get in hospital wards, 76% of cases were cured. The case fatality rate in those remaining in the nursing home was lower (20%) than that reported in other settings (34%)[11,12] despite being mostly patients with high functional dependence. Seven patients were referred to a tertiary care hospital for presenting medical criteria for mechanical respiratory ventilation.

As far as we know, this is the first reported study describing how a nursing home was transformed in an intermediate care facility to face the COVID-19 outbreak and analyzing which prognostic factors could predict infection-related mortality in this segment of the elderly population, despite the deployment of a significant amount of medical resources

Several factors related to gender, respiratory symptoms, supportive and specific therapy, cognitive and functional deterioration, and inflammatory and immune factors were associated with mortality in the bivariate analysis. In the multivariate logistic regression analysis, only male-gender, Barthel index, lymphocytopenia, and hydroxychloroquine plus azithromycin were identified as independent factors for mortality.

Many reports have outlined that, despite rates of infection are similar among men and women, men are at higher risk of death from the COVID-19 infection[3,19]. The explanation for that phenomenon is unclear, although previous studies have suggested that women are less susceptible to viral infection possibly,

because of the protection of X chromosome and sex hormones, which play an essential role in innate and adaptive immunity[20].

The institutionalized elderly present a cognitive and functional decline that may worsen with acute illness such as COVID-19 [21]. This study reveals a direct relationship between decreased functional capacity measured by the Barthel index and mortality. Functional status in older people has been identified as a prognostic mortality factor in respiratory infections[22]. The current study is the first to prove a direct relationship between the Barthel index and mortality in COVID-19 infected patients.

Contrary to what was expected, we did not find any relationship between clinical comorbidity and death in these patients, a factor that is usually present in studies evaluating mortality for other causes in older people [23-25] , and that it was also relevant in previous reports of COVID-19 infection in China[5,6,26]. Besides, flu vaccination also had no impact on mortality.

The other independent risk factor detected was lymphocytopenia, a common finding in COVID-19 infected patients that has been previously related to mortality [4,27,28]. This could be due to a direct effect of the virus or the consequence of the cytokine-mediated inflammatory cascade inducing lymphocytes migration [27]. In any case, T-lymphocytes deficiency or dysregulation may reflect oversized immune reactions that can contribute to disease severity and mortality[29].

Regarding the treatment, hydroxychloroquine and azithromycin were prescribed for five days as the first option for all patients. Electrocardiograms were performed on all patients before and during treatment with hydroxychloroquine and azithromycin. When this pharmacological combination was contraindicated concerning electrocardiographic alterations, either hydroxychloroquine alone or beta-lactams were prescribed instead. It is worth highlighting that the multivariate logistic regression analysis identified hydroxychloroquine plus azithromycin treatment as an independent factor favoring survival compared with no treatment or other treatments. At present, contradictory results have been published regarding the effectiveness of this treatment in COVID-19 infected patients and the associated risk of adverse events using those medications [30-34]. It might be possible that this treatment could only work when used early and in a particular group of patients with similar specific characteristics as in the present study. In any case, only randomized clinical trials could definitively clear these uncertainties.

Using only those independent risk factors identified in the multivariate analysis, which could be easily collected at onset of the disease infection, we have elaborate a score that, beyond the potential beneficial effect of pharmacological treatment, may be able to predict mortality with reasonable specificity and sensitivity.

This study has some limitations. First, it is a retrospective study, and some missing laboratory date precluded to include LDH and D-dimer parameters in the multivariate regression analysis. Second, the advanced age of all patients included has probably been prevented from identifying this parameter as a prognostic factor for death. Third, the high prevalence of dementia and functional dependence among

the patients included may have generated results that might not be precisely reproducible in other cohorts of elderly patients with better functional capabilities.

Conclusions And Implications

In summary, this study describes the feasibility of transforming a nursing home into an intermediate healthcare facility to face an epidemic outbreak of COVID-19 in this setting and limiting referrals to a tertiary care hospital. For taking care of those COVID-19 infected older people, the independent prognostic factors identified in the present study can be of enormous help to adjust the adequate healthcare resources provision and for limitation of therapeutic efforts in case of new outbreaks of the pandemic.

Declarations

Declaration of interests

There are no conflicts of interest.

No funding

Ethics

Approval is from the Ethics Committee of the Andorran Health Care

References

1. Zhou F, Yu T, Du R, Fan G, Liu Y, Xiang J, et al. Clinical course and risk factors for mortality of adult in-patients with COVID-19 in Wuhan, China: a retrospective study. Lancet 2020;395:1054-62.
2. Richardson S, Hirsch JS, Narasimhan M, Crawford JM, McGinn T, Davidson KW, et al. Presenting characteristics, comorbidities, and outcomes among 5700 patients hospitalized with COVID-19 in the New York City Area. JAMA 2020;323:2052-9.
3. Xiaochen L, Shuyun XU, Muqing Y, Wang K, Tao Y, Zhou Y, et al. Risk-factors for severity and mortality in adult COVID-19 inpatients in Wuhan. J Allergy Clin Immunol 2020;S0091-6749(20)30495-4.doi:10.1016/j.jaci.2020.04.006.
4. Chen T, Wu D, Chen H, Yan W, Yang D, Chen G, et al. Clinical characteristics of 113 deceassed patients with coronavirus disease 2019: Retrospective study. BMJ 2020368:m1091.doi:10.1136/bmj.m1091.
5. Tian W, Jiang W, Yao J, Nicholson CJ, Li RH, Haakon H, et al. Predictors of mortality in hospitalized COVID-19 patients: A systematic review and meta-analysis. J Med Virol 2020;10.1002/jmv.26050.doi:10.1002/jmv.26050.
6. Du RH, Liang LR, Yang CQ, Wang W, Cao TZ, Li M, et al. Predictors of mortality for patients with COVID-19 pneumonia caused by SARS-CoV-2: A prospective cohort study. Eur Respir J 2020;55(5):2000524.doi: 1183/13993003.00524-2020.

7. Na Z, Ding Z, Wen W. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020; 395: 497–605.

8. Huang C., Wang Y., Li X., Ren L., Zhao J., Hu Y. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. Lancet. 2020;395:497–506.

9. Zhou F., Yu T., Du R., Fan G., Liu Y., Liu Z. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. Lancet. 2020;395:1054–1062.

10. Chen N Zhou M Dong X et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. Lancet. 2020; 395: 507-513

11. McMichael TM, Currie DW, Clark S, Pogosjans S, Kay M, Schwartz NG, et al. Epidemiology of COVID-19 in a long-term care facility in King County, Washington. N Engl J Med 2020;382:2005-11.

12. Arons MM, Hatfield KM, Redy SC, Kimball A, James A, Jacobs JR, et al. Presymptomatic SARS- Cov-2 infections and transmission in a skilled nursing facility. N Eng J Med 2020;382:2081-9.

13. Reisberg, B., Ferris, S.H., de Leon, M.J., and Crook, T. The global deterioration scale for assessment of primary degenerative dementia. American Journal of Psychiatry, 1982;139:1136-9.

14. Mahoney FI, Barthel DW. Functional evaluation: the Barthel Index. Md State. Med, 1.965; 14: 61-5.

15. Shah S, Vanclay F, Cooper B. Improving the sensitivity of the Barthel Index for stroke rehabilitation. J Clin Epidemiol 1989; 42: 703-709.

16. Charlson ME, Pompei P, Ales KL, et al. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. J Chronic Dis 1987; 40(5) 373-383.

17. European Centre for Disease Prevention and Control. Novel Coronavirus (SARS-CoV-2). Discharge Criteria for Confirmed COVID-19 Cases.2020 https://ecdc.europa.eu/sites/default/files/documents/COVID-19-Discharge-criteria.pdf.

18. Hosmer and Lemeshow, 2013. Applied Logistic Regression 3rd Edition. John Wiley & Sons,

19. Jin JM, Bai P, He W, Wu F, Liu XF, Han DM, et al. Gender differences in patients with COVID-19: focus on severity and mortality. Front Public Health 2020;152.doi:10.3389/fpubh.2020.00152.

20. Gal-Oz S T, Maier B, Yoshida H. ImmGen report: sexual dimorphism in the immune system transcriptome. Nat Commun. 2019;10(1):4295. doi: 1038/s41467-019-12348-6.

21. Huali Wang, Tao Li, Paola Barbarino, Serge Gauthier, Dementia Care During COVID-19. Lancet 2020 Apr 11;395(10231):1190-1191.

22. Corrao S, Argano C, Natoli G, Nobili A, Corazza GR, Mannucci PM, et al. Disability and not diabetes is a strong predictor of mortality in oldest patients hospitalized with pneumonia. Eur J Intern Med 2018.54:53-59.

23. Quan H, Li B, Couris CM, Fushimi K, Graham P, Hider P, et al. Updating and validating the Charlson comorbidity index and score for risk adjustment in hospital discharge abstratcs usieng data from 6 countries. Am J Epidemiol 2011;173:676-82.

24. Onder G., Rezza G., Brusaferro S. Case-fatality rate and characteristics of patients dying in relation to COVID-19 in Italy. J Am Med Assoc. 2020 March 23

25. Ruan Q, Yang K, Wang W, Jiang L, Song J. Clinical predictors of mortality due to COVID·19 based on an analysis of data of 150 patients from Wuhan, China. Intensive Care Med 2020; published March

26. Wang L, He W, Yu X, Hu D, Bao M,Liu H, et al. Coronavirus disease 2019 in elderly patients: charateristics and prognostic factors based on 4-week follow-up. J Infect 2020;80:639-45.

27. Qin C, Zhou L, Hu Z, Zhang S, Yang S, Tao Y, et al. Dysregulation of immune response in patients with COVID-19 in Wuhan, China. Clin Infect Dis 2020;doi:10.1093/cid/ciaa248.

28. Lippi G, Plebani M, Henry BM. Thrombocytopenia is associated with severe coronavirus disease 2019(COVID-19) infections: A meta-analysis. Clin Chim Acta 2020;506:145-148.

29. Pedersen SF and Ho Ch. SARS-Cov-2: A storm is raging. J Clin Invest 2020;130:2202-5.

30. Chowdhury MS, Rathod J, Gernsheimer J. A rapid systematic review of clinical trials utilizing chloroquine and hydroxychloroquine as a treatment for COVID-19. Acad Emerg Med 2020;27:493-504.

31. Gautret P, Lagier JC, Parola P, Hoang VT, Meddeb L, Mailhe M, et al. Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial. Int J Antimicrob Agents. 2020;105949.

32. Rosenberg ES, Dufort EM, Udo T, Wilberschied LA, Kumar J, Tesoriero J, et al. Association of treatment with hydroxychloroquines or azithromycin with in-hospital mortality in patients with COVID- 19 in New York State. JAMA 2020;e208630.doi:10.1001/jama.2020.8630.

33. Cortegiani A, Ingoglia G, Ippolito M, Giarratano A, Einav S. A systematic review on the efficacy and safety of chloroquine for the treatment of COVID-19. J Crit Care. 2020;S0883-9441(20)30390-7.

34. Gao J, Tian Z, Yang X. Breakthrough: Chloroquine phosphate has shown apparent efficacy in treatment of COVID-19 associated pneumonia in clinical studies. Biosci Trends. 2020;14(1):72–73. doi:10.5582/bst.2020.01047.

Tables

Table 1 Risk factors associated with COVID-19 mortality on bivariate analysis

Variable	OR	95% CI	P-Value	
Sex - Male	4.91	1.82-13.28	<0.001	*
Age	0.993	0.94-1.05	0.888	
Flu vaccine	1.88	0.67-5.22	0.219	
Temperature> 37,5º	3.42	1.14-10.20	0.021	*
Respiratory symptoms	3.80	1.27-11.40	0.012	*
H[a] side effects	5.25	0.80-34.5	0.090	
Treatment			<0.001	*
H[a] vs H+A[b]	3.88	0.79-18.9	0.094	
No treatment vs H+A	12.66	3.94-40.0	<0.001	*
H vs No treatment[c]	3.25	0.62-17.24	0.163	
Treatment 24 h	1.09	0.42-2.83	0.863	
Serum therapy	4.95	1.65-14.80	0.002	*
Oxygen therapy	23.0	2.88-183.7	<0.001	*
Severe cognitive decline (GDS 5-7)	5.39	1.15-25.2	0.018	*
Charlson	1.08	0.86-1.36	0.183	
Barthel index	0.979	0.963-0.995	0.021	*
Functional capacity, Barthel<60	5.72	1.22-26.7	0.014	*
Ferritin (log)	1.77	0.87-3.62	0.106	
LDH (log)	5.75	0.99-33.5	0.033	*
Anemia	2.09	0.60-7.32	0.233	
Lymphocytopenia	3.29	1.001-10.78	0.040	*
Thrombocytopenia	1.45	0.43-4.86	0.542	
D DIMER (log)	2.19	1.13-4.21	0.015	*
CRP (log)	1.48	0.93-2.36	0.063	
Troponin (log)	3.40	0.96-12.1	0.092	

H[a]: Hydroxychloroquine.

H+A[b]: Hydroxychloroquine and Azithromycin.

No treatment [c] includes Others: Beta-lactam or Quinolone antibiotics.

<u>Table 2</u> Risk factors associated with COVID-19 mortality on multivariate analysis

Variable	OR	95% CI	P-Value
Sex - Male	38.1	4.26-339.6	0.001
Treatment			
H[a] vs H+A[b]	7.32	0.69-78.06	0.098
No treatment [c] vs H+A	22.6	2.85-179.5	0.004
H vs No treatment	3.09	0.26-36.9	0.369
Barthel's index	0.953	0.922-0.985	0.006
Lymphocytopenia	6.55	1.06-40.64	0.039

H [a]: Hydroxychloroquine.

H+A [b]: Hydroxychloroquine and Azithromycin.

No treatment [c] includes others: Beta-lactam or Quinolone antibiotics.

Figures

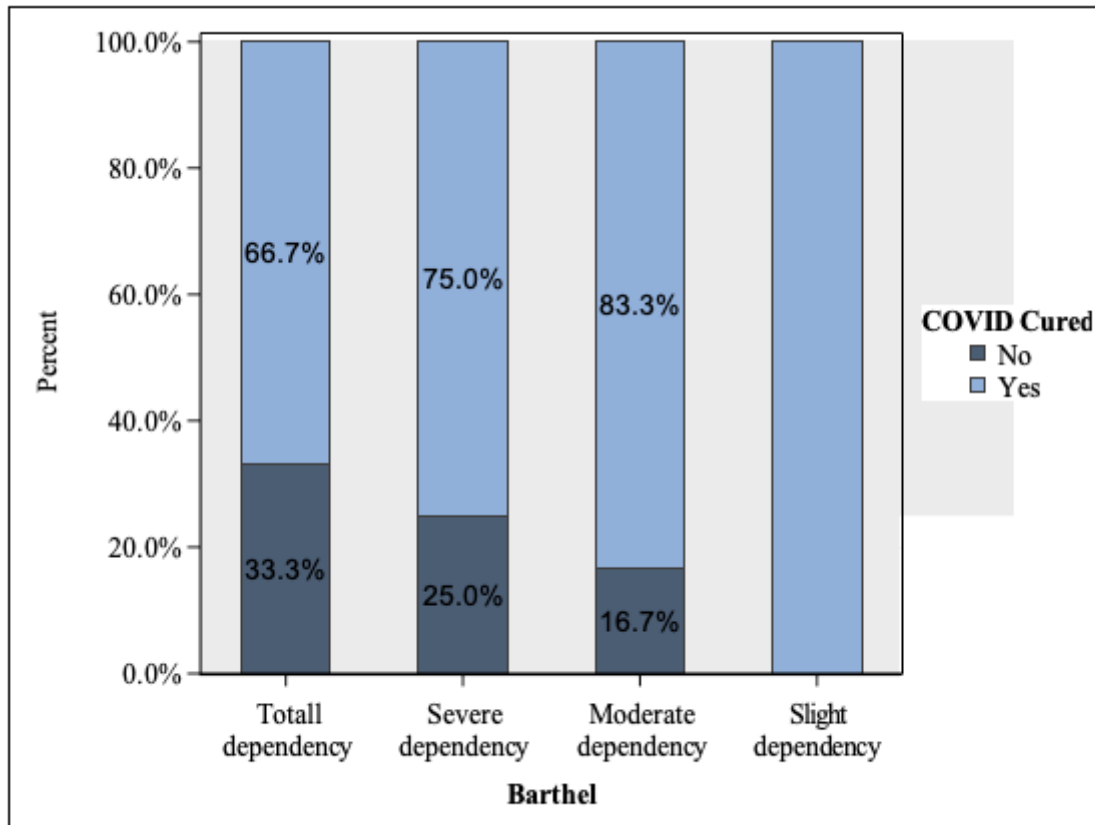
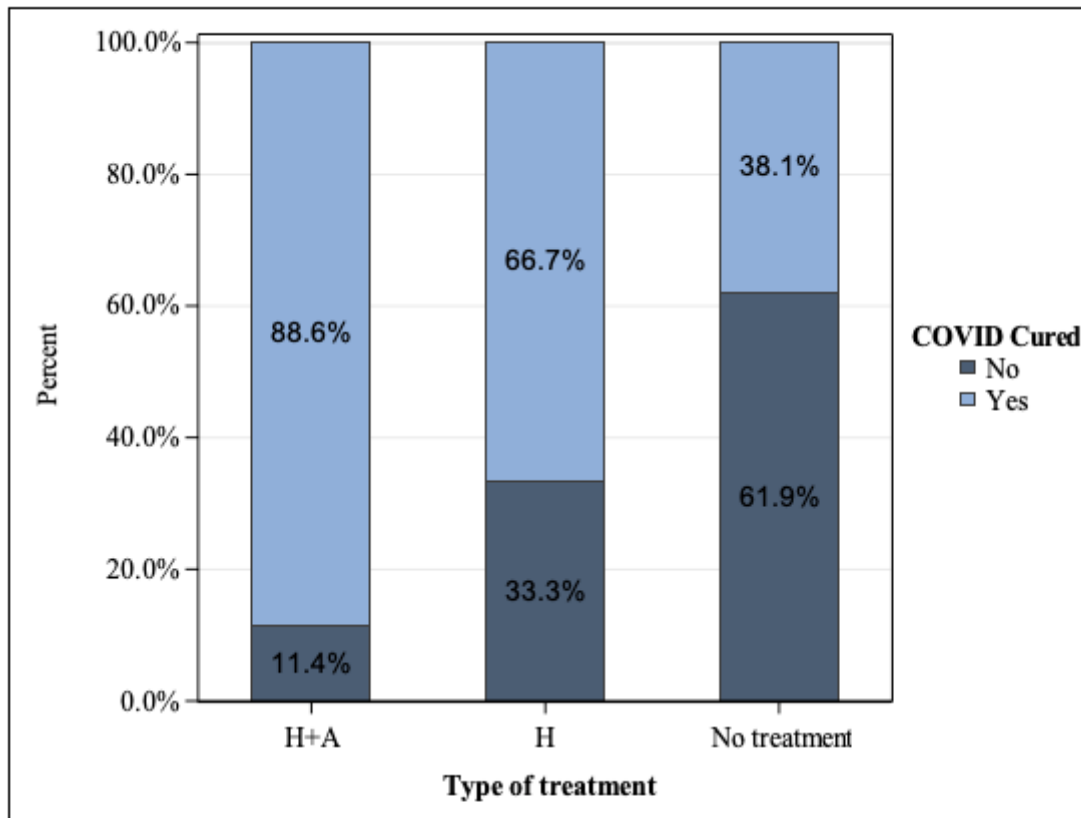



Figure 1

Functional capacity and percentage of COVID-19 patients cured.

H+A: Hydroxychloroquine and Azithromycin.

H: Hydroxychloroquine.

No treatment includes Others: Beta-lactam or Quinolone antibiotics.

Figure 2

Type of treatment and percentage of COVID-19 patients cured.

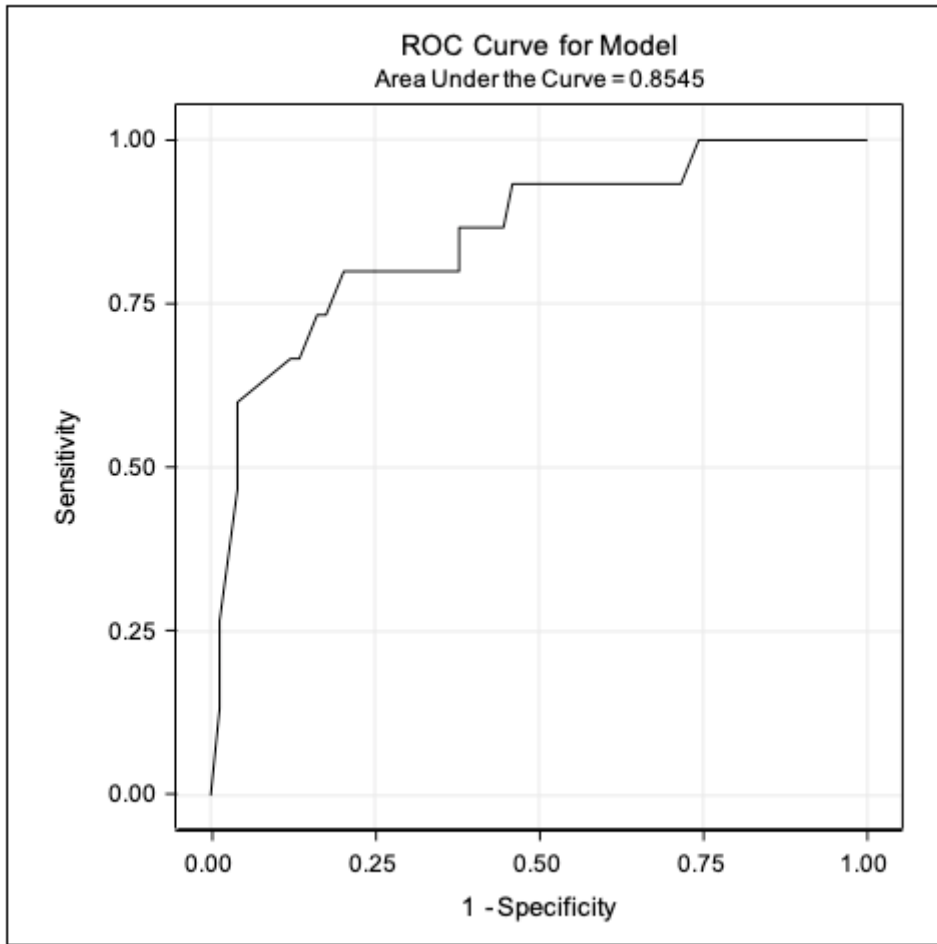



Figure 3

Prognostic COVID-19 mortality score-ROC Curve for Model