Data Article

Neurological complications of COVID-19 during March 2020 at LCMC health university medical center: Dataset

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A R T I C L E   I N F O

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A B S T R A C T

We reviewed the electronic medical records (EMR) of patients hospitalized during the peak of the pandemic, March 1st through March 31st, to document the type and frequency of neurological problems seen in patients with COVID-19 at presentation to the emergency room. Secondary aims were to determine: 1) the frequency of neurological complaints during the hospital stay; 2) whether the presence of any neurological complaint at presentation or any of the individual types of neurological complaints at admission predicted three separate outcomes: death, length of hospital stay, or the need for intubation; and 3) if the presence of any neurological complaint or any of the individual types of neurological complaints developed during hospital stay predicted the previous three outcomes.

Setting: The Louisiana Health Sciences Center – New Orleans Institutional Review Board and the University Medical Center Clinical Research Review Committee approved the study protocol.

Data acquisition: We reviewed the electronic medical records (EMR) of patients hospitalized during March (March 1st through March 31st) 2020 at the University Medical Center

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New Orleans (UMCNO), who tested positive for SARS-CoV-2 during the same hospitalization. The EMR team generated a list of 257 patients admitted for COVID-19. We excluded seven patients because of a negative COVID-19 test result or incomplete medical record documentation. Three neurology residents (DC, MS, DB) reviewed the EMR in detail to capture the relevant medical history, clinical course, and laboratory test results and abstracted data into an electronic data collection spreadsheet.

We recorded the presentation or development of the following neurological complaints: headache, syncope, altered mental status, seizure, status epilepticus, and ischemic or hemorrhagic stroke.

**Statistical analysis:** We used “R” (statistics software) and Microsoft Excel to generate summary tables. To analyze hospital length of stay or death, we fitted a competing risks proportional hazards model for time to discharge or death using the crr() function in R version 4.0.0. The competing risks model allowed the analysis of hospital stay, taking into account that the censoring of cases due to death was not random. To predict the likelihood of intubation, we used the glm() function in R to fit a logistic regression model. For each model, we determined baseline demographic variables predictive of the outcomes and generated adjusted models. For variables with less than five cases per cell, we reported the p-values for Fisher’s Exact Test.

The analyses and results are published in: Chachkhiani, David et al. “Neurological complications in a predominantly African American population of COVID-19 predict worse outcomes during hospitalization.” Clinical Neurology and Neurosurgery (in press).

These data will be useful for researchers trying to build larger datasets regarding COVID19 neurological complications for metaanalysis or to answer other questions requiring larger sample sizes.

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**Specifications Table**

| Subject | Clinical Neurology |
|---------|-------------------|
| Specific subject area | COVID19 neurological complications |
| Type of data | Excel spreadsheet |
| Type of data | R code |
| How data were acquired | We reviewed the electronic medical records (EMR) of patients hospitalized during March (March 1st through March 31st) 2020 at the University Medical Center New Orleans (UMCNO), who tested positive for SARS-CoV-2 during the same hospitalization. |
| Data format | Raw data:Microsoft Excel |
| Analysis code: | R |
| Parameters for data collection | Patients admitted for COVID-19 from March 1st through March 31st |
| Description of data collection | The EMR team generated a list of 257 patients admitted for COVID-19. We excluded seven patients because of a negative COVID-19 test result or incomplete medical record documentation. Three neurology residents (DC, MS, DB) reviewed the EMR in detail to capture the relevant medical history, clinical course, and laboratory test results and abstracted data into an electronic data collection spreadsheet. |

(continued on next page)
Value of the Data

- These data present the length of stay, death and intubation as well as neurological complications in a cohort of predominantly African American patients admitted to one of the main hospitals in New Orleans – Louisiana. With this data we can determine which neurological complications are predictors of worse outcomes
- Researchers compiling larger datasets may be able to analyze complications that are less frequent. The predominantly African American origin of the patients will allow to add diversity to aggregated datasets.
- This data when aggregated with data from other hospital may help address issues of disparity in outcomes related to race.
- Hospital administrators may be able to plan for the length of hospital stay in similar populations

1. Data Description

Data for publication_072820.xlsx dataset.
This Excel workbook includes the data dictionary and the full dataset.
The variable names are given in square brackets.
[Study_ID] is the unique identifier for each patient in the dataset.

Demographics:
Age [age] is the age in years at the most recent admission. To maintain the data deidentified ages greater than 89 years old were all recorded as 90. Sex is the sex at birth as recorded in the chart.

Race [race] and ethnicity [ethnicity] are usually recorded in the demographics section at admission or in the history and physical documentation upon admission. In our population the ethnicity refers to Hispanic and Non-hispanic. These definitions, although international readers may find these arbitrary, follow the current standards for classification of race and ethnicity (https://obamawhitehouse.archives.gov/omb/fedreg_1997standards). Race was missing in 13% of the cases.

COVID risk factors:
At the time of the study obesity and hypertension had been identified as risk factors for COVID severity. Body mass index [bmi], smoking status [smoker], [asthma], [obesity] were
obtained from the most recent admission that was related to the diagnosis of COVID-19. BMI was calculated using most recent documented weight and height. Past medical history variables for hypertension [hx_htn], diabetes [hx_diabetes], migraine [hx_migraine], epilepsy [hx_epilepsy], previous cerebrovascular accident [hx_cva], diabetes, migraine, epilepsy,] were obtained from the problem list, chart review and admission history and physical (HPI).

From the documentation by the emergency room or the admission HPI we extracted neurological chief complaints. The chief complaints identified were: altered mental status [cc_ams], cc_headache [headache], seizure [cc_seizure], syncope [cc_syncope], ageusia [cc_ageusia], lethargy [cc_lethargy].

We reviewed the charts to identify the following complications during hospital stay: altered mental status [AMS_comp], seizures [Seizure_comp], status epilepticus [Status_comp], stroke [CVA_comp], headache [Headache_comp], encephalitis [Encephalitis_com], loss of sense of taste or smell [ageusia_anosmia_comp].

Length of stay [los] is the time in days from admission to either discharge or death. We did not have patients with readmission.

Several of the patients received various off-label treatments including azithromycin [Azithromycin], hydroxychloroquine [Hydroxychloroquine], combination of lopinavir and ritonavir [LopinavirRitonavir], remdesiver [Remdesiver] and [Oseltamivir]. The use of each of these treatments was extracted from documentation made by primary team or infectious disease consultants.

Rcovid6 is the R code to analyze the data.

2. Experimental Design, Materials and Methods

The Louisiana Health Sciences Center – New Orleans Institutional Review Board and the University Medical Center Clinical Research Review Committee approved the study protocol. The primary aim was to document the type and frequency of neurological problems seen in this one-month sample of patients with COVID-19 at presentation to the emergency room. Secondary aims were to determine: 1) the frequency of neurological complaints during the hospital stay; 2) whether the presence of any neurological complaint at presentation or any of the individual types of neurological complaints at admission predicted three separate outcomes: death, length of hospital stay, or the need for intubation; and 3) if the presence of any neurological complaint or any of the individual types of neurological complaints developed during hospital stay predicted the previous three outcomes.

We reviewed the electronic medical records (EMR) of patients hospitalized during March (March 1st through March 31st) 2020 at the University Medical Center New Orleans (UMCNO), who tested positive for SARS-CoV-2 during the same hospitalization. The EMR team generated a list of 257 patients admitted for COVID-19. We excluded seven patients because of a negative COVID-19 test result or incomplete medical record documentation. Three neurology residents (DC, MS, DB) reviewed the EMR in detail to capture the relevant medical history, clinical course, and laboratory test results and abstracted data into an electronic data collection spreadsheet.

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3. Statistical Analysis

We used “R” (statistics software) and Microsoft Excel to generate summary tables. To analyze hospital length of stay or death, we fitted a competing risks proportional hazards model for time to discharge or death using the crr() function in R version 4.0.0. The competing risks model allowed the analysis of hospital stay, taking into account that the censoring of cases due to death
was not random. To predict the likelihood of intubation, we used the glm() function in R to fit a logistic regression model. For each model, we determined baseline demographic variables predictive of the outcomes and generated adjusted models. For variables with less than five cases per cell, we reported the p-values for Fisher’s Exact Test.

**Ethics Statement**

The Louisiana Health Sciences Center – New Orleans Institutional Review Board and the University Medical Center Clinical Research Review Committee approved the study protocol (protocol ID# 20-881). The Review Board waived the informed consent requirement because the study was retrospective.

**CRediT Author Statement**

**David Chachkhiani:** Conceptualization, Methodology, Writing - original draft, Supervision, Investigation; **Michael Y. Soliman:** Investigation, Writing - review & editing; **Delphi Barua:** Investigation, Writing - review & editing; **Marine Isakadze:** Writing - review & editing; **Nicole R. Villemarette-Pittman:** Writing - review & editing; **Deidre J. Devier:** Writing - review & editing; **Jesus F. Lovera:** Formal analysis, Methodology, Supervision, Writing - review & editing.

**Declaration of Competing Interest**

The authors declare that they have no known competing financial interests or personal relationships which have, or could be perceived to have, influenced the work reported in this article.

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**Reference**

[1] D. Chachkhiani, M.Y. Soliman, D. Barua, M. Isakadze, N.R. Villemarette-Pittman, D.J. Devier, J.F. Lovera, Neurological complications in a predominantly African American sample of COVID-19 predict worse outcomes during hospitalization, Clin. Neurol. Neurosurg. 197 (2020) 106173.