Impact of Spanish Public Health Measures on Emergency Visits and COVID-19 diagnosed cases during the pandemic in Madrid

Francisco Javier Martín-Sánchez1
Adrián Valls Carbó1
Amanda López Picado2
Carmen Martínez-Valero1
Juande D. Miranda3
José María Leal Pozuleo1
Juan González del Castillo1
1Hospital Clínico San Carlos, (IdISSC) Madrid, Spain
2Clinical Trials and Research Unit. Hospital Clínico San Carlos. (IdISSC) Madrid, Spain
3Modeling Risk Division, Repsol, Madrid, Spain

ABSTRACT

Introduction. Changes in Public Health recommendations may have changed the number of emergency visits and COVID-19 diagnosed cases in an Emergency Department in Madrid.

Material and methods. This retrospective case series study included all consecutive patients in a tertiary and urban ED in Madrid from 1st to 31st March. The sample was divided: Non-COVID-19, Non-investigated COVID-19, Possible COVID-19, Confirmed COVID-19. Differences between public health periods were tested by ANOVA for each cohort, and by ANCOVA including the number of PCR tests (%) as covariate.

Results. A total of 7,163 (4,071 Non-COVID-19, 563 Non-investigated COVID-19, 870 Possible, 648 Probable and 1,011 Confirmed COVID-19) cases were included. Public Health measurements applied during each period showed a clear effect on the case proportion for the five cohorts.

Conclusion. The variability of case definitions and diagnostic test criteria may have impact on the number of emergency visits and COVID-19 diagnosed cases in Emergency Department.

Keywords: COVID-19; SARS-Cov_2; Emergency; epidemiology; Health Public; Spain.

INTRODUCTION

Since December 2019, when the first coronavirus disease-2019 (COVID-19) was reported in Wuhan (Hubei, China), the virus has spread worldwide, causing a global pandemic. This has become an international public health emergency [1]. Spain has been one of the most affected countries in the world being...
Impact of Spanish Public Health Measures on Emergency Visits and COVID-19 diagnosed cases during the pandemic in Madrid

F. J. Martín-Sánchez, et al.

Rev Esp Quimioter 2020;33(4): 274-277

METHODS

We present a retrospective case series study that included consecutive patients in the Emergency Department of The University Hospital Clínico San Carlos (HCSC) from 1st to 31st March. HCSC is an urban tertiary university hospital in Madrid with a 400,000 people referent area. The Emergency Department has a medical activity of 140,000 attentions per year. This center is sited in the center of the city where population density is approximately 5,000 inhabitants per km2.

First case of COVID-19 infection in our center was diagnosed on February 28th (being the first in Madrid on February 24th). Several important dates must be highlighted [1]: i) March 5th, the emergency physicians were allowed to order tests without Public Health authorization in those patients admitted for severe viral pneumonia or met epidemiological criteria; ii) March 11th, Madrid was recognized as an area with community transmission, thereby previous epidemiological criteria were not needed for test request in our region; iii) March 14th, Spanish Government declared a State of Emergency and population confinement was implemented; iv) March 25th, there was an instruction to constrain tests only in patients with unclear COVID-19 diagnosis, but not in those with high clinical suspicion.

There is a lack of information about the impact of the different actions undertaken by Spanish Public Health on the number of emergency visits and the frequency of the confirmed COVID cases during the pandemic in Madrid. We aimed to describe the frequency of emergency visits and COVID-19 cases depending on the instructions about the confinement, case definitions and diagnostic test criteria undertaken by Spanish Public Health in an Emergency Department in Madrid during the SARS-CoV-2 pandemic.

RESULTS

Figure 1 shows 7,163 cases: Non-COVID-19 (n=4,071), Non-investigated COVID-19 (n=563), Possible (n=870), Probable (n=648) and Confirmed COVID-19 cases (n=1,011). Public Health
There are several limitations in our study. First, this was an observational study and causal relationships cannot be inferred. Second, this is a real-life cohort without intervention in which attending physicians followed the local protocol and the findings cannot extrapolate to other centers. Third, the sensitivity and specificity of the PCR may differ from other studies and this fact may have modified the categorization of the patients. Finally, this study included only one center although this may be representative of what has happened in an urban and tertiary Emergency Department that offered health care to one of the nuclei of the pandemic in Madrid.

In conclusion, the variability of case definitions and diagnostic test criteria could have had a significant impact on the number of emergency visit and COVID-19 cases diagnosed in Emergency Department.

**ACKNOWLEDGEMENTS**

We wish to thank investigators of COVID-19 URG-HCSC Register (Enrique del Toro, Eduardo Cardassay, David Chaparro, Gabriel Cozar López, María del Mar Suárez-Cadenas, Pablo Jerez Fernández, Beatriz Angós, Cristina Díaz del Arco, Esther Rodríguez Adrada, María Teresa Montalvo Moraleda, Carolina Espejo Paeres, José Luis Fernández Rueda, Víctor Hernán-
Impact of Spanish Public Health Measures on Emergency Visits and COVID-19 diagnosed cases during the pandemic in Madrid

F. J. Martín-Sánchez, et al.

Rev Esp Quimioter 2020;33(4): 274-277

dez Martín-Romo, Miguel Ángel García Briñón, Carlos Javier Llamas, Laura Matilla, Mª Luisa Bretón, Beatriz Rojano, José Antonio Bustamante, Eric Jorge Garcia Lamberechts, Manuel Maroto, Álvaro Martín Ruiz, María Martínez Agüero, Arturo Corbatón, Cesario Fernández Alonso, Jaime Abelaira, Pablo Matías, Raúl Perales, María Rosario Blázquez, M. Carmen Muñoz, Alejandra Ortega, Carlota Clemente, Sara Lainez, Antonio Trino Salto Ariza, Juan Manuel Algarra, Pedro Villarroel González Elipe, Juan Jorge González Armengol, IdISSC-COVID-TASKFORCE, Unidad de Investigación, Unidad de Investigación Clínica y Ensayos Clínicos, Unidad de Apoyo Metodológico a la Investigación, Biobanco, Unidad de Apoyo a los Comités de Ética, Unidad de Apoyo a Farmacia: gestión de medicación de investigación y Laboratorios Gabinetes y Servicios Clínicos de Apoyo a la Investigación for their most valuable efforts.

FUNDING

None to declare

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest

REFERENCES

1. World Health Organization. Coronavirus disease (COVID-19) outbreak. Second meeting of the Emergency Committee meeting [30th January 2020] Available at: https://www.who.int.

2. Equipo COVID-19. Red Nacional de Vigilancia Epidemiológica-Instituto Carlos III. Informe nº 29. Situación de COVID-19 en España a 14 de mayo de 2020. [Internet] Available at: https://www.isciii.es/QueHacemos/Servicios/VigilanciaSaludPublicaRENAVE/EnfermedadesTrasmisibles/Documents/INFORMES/Informe%20COVID-19/Informe%20COVID-19%20Situacion%20En%20Espa%C3%B1a%2014%20Mayo%202020.pdf [Access 17th May 2020]

3. Pan A, Liu L, Wang C, et al. Association of Public Health Interventions With the Epidemiology of the COVID-19 Outbreak in Wuhan, China. JAMA. 2020. In press. doi:10.1001/jama.2020.6130.

4. Eiros JM, López-Izquierdo R, Bouza E. Coronaviruses that are always present. Emergencies. 2020;32:160-1. PMID: 32395922

5. Kraemer MUG, Yang CH, Gutierrez B, et al. The effect of human mobility and control measures on the COVID-19 epidemic in China. Science 2020. In press. doi:10.1126/science.abc64218.