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ORIGINAL ARTICLE

Implementation of safety measures on the execution of an academic meeting during COVID-19 pandemic

Medidas de seguridad durante la ejecución de una reunión académica en la pandemia de COVID-19

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Abstract

Background: *Contention strategies have been implemented since the beginning of the COVID-19 pandemic.* **Objective:** *To evaluate the impact of safety measures and infection rate during an academic meeting.* **Methods:** *A cross-sectional study was performed. A survey was used and data analysis performed afterwards.* **Results:** *Fifty-eight (mean age 34, 67% males) attendees were included; 34 were medical professionals (57%), 8 (14%) worked for the pharmaceutical industry, 14 (24%) were hotel staff and 2 (4%) were accompanying relatives. Following the meeting, out of a total of 6 attendees who referred symptoms, only 1 (2%) tested positive, this participant stated to have maintained the use of a KN-95 mask throughout the event, with no further spreading reported until today.* **Conclusions:** *The implementation of safety measures in the meeting reduced the risk of contagion among participants. This event might be used as an important reference for future "in-person" academic activities in the post-pandemic era.*

Keywords: *Coronavirus infections. Communicable disease control. Prevention and mitigation. Academic meeting.*

Resumen

Antecedentes: *Se han implementado distintas estrategias de contención desde el inicio de la pandemia de COVID-19.* **Objetivo:** *Evaluar el impacto de medidas de seguridad en la tasa de infecciones durante un encuentro académico.* **Métodos:** *Estudio observacional retrospectivo. Se utilizó una encuesta y los datos se analizaron posteriormente.* **Resultados:** *Cincuenta y ocho (edad media 34, 67% hombres) participantes completaron la encuesta; 34 (57%) eran personal médico, 8 (14%) trabajadores de industria farmacéutica, 14 (24%) trabajadores del hotel y 2 (4%) acompañantes. Posterior al encuentro 6 personas refirieron sintomatología, únicamente 1 (2%) reportó prueba positiva para SARS-CoV-2, refiriendo el uso continuo de cubrebocas de tipo KN-95 durante el evento. No se documentaron otros casos.* **Conclusiones:** *La implementación de medidas de seguridad en la reunión redujo el riesgo de contagio entre participantes; este evento podría ser usado como referencia en reuniones presenciales de tipo académicas aún en la era post-pandemia.*

Palabras clave: *COVID-19. Enfermedades transmisibles. Control de enfermedades transmisibles. Congreso.*

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Background

On December 29, 2019, the first four cases of what, until then, were an unknown virus were reported[1]. On January 3, the World Health Organization (WHO) received noticed of a rapid and disproportionate outbreak of a new Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2). The COVID-19 pandemic grew at an unprecedented rate, with millions of cases currently reported in the literature. Hence, at the beginning of the pandemic, Wu and McGoogan reported the largest case series; with 72,314 patients included out of which 2.3% were healthcare workers[2].

Non-pharmacological contention strategies such as the use of respiratory masks, hand hygiene, respiratory etiquette, social distancing, and a "Stay Home" campaign were implemented at the beginning of the pandemic; furthermore, a key factor for the effective application of the later strategies was the correct identification and definition of triggers for their activation or deactivation during the different pandemic phases[3].

On May 29, an agreement for the reopening of society was published by the Mexican Health Ministry; there, the Mexican government proposed a path to "a new normality;" which was composed by a staged reopening of the economy and social life. In contrast, the highest proportion of confirmed cases reported by the Mexican government was until July, with an estimated case number of over 47,000 people infected with COVID-19 nationwide, out of which, approximately 5000 infected people were located in Mexico City. In the months following July, a decline in COVID-19 cases was reported[4-6].

The annual meeting of residency programs on Vascular and Endovascular Topics was established in 2009 by the Department of Surgery at the National Institute of Medical Sciences and Nutrition Salvador Zubiran. The purpose of this academic meeting is to promote clinical and scientific growth among Mexican Vascular Surgery residents through their involvement in surgical workshops and their participation on lectures and conferences. After a consensus between the organizers, it was decided to proceed with this event, therefore the Department of Hospital Epidemiology at our Institution provided us recommendations on safety protocols that could let us host this meeting without having an increased risk of infection. (TS1) Hence, in cooperation with the institute, the location venue, the Mexican Society of Vascular and Endovascular Surgery and all the residency programs, this event took place from September 1st to September 03, 2020, in a hotel located in Contepec, in the state of Michoacan, Mexico. Following the academic meeting, we aimed to evaluate the impact of the implementation of safety measures, attendees' compliance, and possible infection rate.

Methods

This is an observational and descriptive study, in which we applied a standardized survey to a group of participants of the 12th annual meeting of residency programs on vascular and endovascular topics. To carry out the meeting, we requested guidance from the Department of Hospital Epidemiology in our Institution. The later recommended us to adhere to the WHO considerations for mass gatherings in the context of COVID-19; hence, it gave us some recommendations that included:

– Event modifications related to the location venue.
  - Event modifications related to participants.
  - Modifications related to the event duration.
  - The post-meeting phases.

The event took place from Thursday, September the 1st to Saturday September the 3rd of 2020. The final venue location (Contepec, Michoacan, Mexico) fulfilled the World Travel and Tourism Council (WTTC) standards, which follows the WHO Crisis Committee recommendations.

After the event had ended, an electronic informed consent was sent to all the participants of the academic meeting (medical and non-medical) through E-mail. Once it was signed, they were requested to answer a Spanish written electronic survey (TS2) through the REDCap platform about the presence of respiratory symptoms and their participation on low and/or high-risk activities during the event. After all the data were collected, we generated a database and analyzed the variables to obtain frequencies, proportions, distribution, and measures of central tendency. Finally, we compared our results with the current literature and wrote the final draft.

The protocol was approved by the Research and Ethics Committee at the Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran.

Results

Out of the 79 participants who answered the digital informed consent, only 58 (73%) of them completed the digital survey correctly; furthermore, those 58 (100%) participants were included in the present study and the remainder were excluded from the study. Regarding

sex, 39 (67%) were male and 19 (33%) were female. The mean age was 34 years (Range 19-65). In terms of occupation, 21 (36%) participants were vascular surgery residents, 13 (22%) were faculty, 8 (14%) worked for the pharmaceutical industry, 14 (24%) were part of the hotel staff, and 2 (4%) were accompanying relatives (Table 1). In regard to their medical history, 5 (9%) participants stated that they had been previously diagnosed as confirmed cases of COVID-19; 4 (7%) of them were isolated in their houses for 2 weeks; and 1 (2%) had a history of hospitalization previous to the academic meeting. Hence, 3 (5%) of them had documented SARS-CoV 2 IgG antibodies.

In terms of measures taken by the participants to avoid COVID-19 infection, 18 (31%) stated that they avoided public gatherings, limiting themselves to academic activities only, 35 (60%) referred to have maintained social distancing in moments when they were not using face masks such as eating or sleeping, 52 (90%) stated that they used face masks when they were in public, 42 (72%) attendees considered that they used a greater amount of hand sanitizer in comparison to their daily life, 36 (62%) stated that they washed their hands more often than regularly and all of them (100%) said that they took some kind of preventive measure (Table 2).

When analyzing the use of face masks during the encounter different activities, the average percentage of time that the participants wore face masks was 95.2% (Range 92-97.5) during academic-related activities and 60.3% (Range 54.8-63.6) during non-academic activities; with a mean of 77.8% of the time throughout the event.

Regarding COVID-19 symptoms after the meeting had ended, a total of six attendees stated to have any of the following symptoms: the presence of cough was reported by 1 (2%) participant after the event, fever was indicated by 1 (2%) attendee, and headache was present in 5 (9%) participants (Table 3). After the academic meeting ended, out of the six attendees who referred having any symptoms, only 1 (2%) tested positive for COVID-19 infection; however, that participant stated to have maintained the use of a KN-95 respiratory-mask throughout the event; with no further spreading reported.

Table 1. Demographic data of the participants

Symptomatic attendees	n = 58 (%)
Male	39 (67)
Female	19 (33)
Residents	21 (36)
Faculty	13 (22)
Pharmaceutic representatives	8 (14)
Hotel staff	14 (25)
Accompanying relatives	2 (4)

Table 2. Preventive measures taken by participants

Symptomatic attendees	Male (n = 39)	Female (n = 19)
Limiting themselves to academic activities	15 (38.4%)	3 (15.7%)
Maintaining social distancing while not wearing a mask	25 (64.1%)	10 (52.6%)
Using face masks in public	36 (92.3%)	16 (84.2%)
Using a greater amount of hand sanitizer	31 (79.4%)	11 (57.8%)
Washing their hands more often	24 (61.5%)	12 (63.1%)
Took some kind of preventive measure	39 (100%)	19 (100%)

Discussion

It is well-understood that coronaviruses have a person-to-person transmission through direct contact[1,7]; this is driven mostly by social interactions such as in the workplace, school, and mass gatherings; hence, social distancing protocols were been put in place to reduce the magnitude and delaying the peak of the COVID-19 outbreak. The aforementioned measures had a beneficial impact by relieving the pressure on the health-care system; however, as it was reported by Prem et al., maintaining extreme physical distancing measures including school closures, workplace closures, and avoiding of any public gatherings all at once could push the transmission into households[7,8]. At the time, it was stated by some authors such as Ocampo and colleagues[9], that confinement measures were not sustainable in the long run in an economic and social perspective (as we now know), as a result, after overcoming the initial peaks of the pandemic, various governments such as the Spanish and the Mexican government joined the WHO in proposing strategies that could lead to a safe and responsible reopening of societies; aiming for a balance between economic recovery; and avoiding premature lifting of social distancing measures that could had led to an exponential epidemic growth[5,10-13].

Table 3. COVID-19 symptoms referred by attendees

Symptomatic attendees	Headache	Cough	Fever	Positive test (PCR) for COVID-19
Case 1	Yes	Yes	No	Yes
Case 2	No	No	Yes	No
Case 3	Yes	No	No	No
Case 4	Yes	No	No	No
Case 5	Yes	No	No	No
Case 6	Yes	No	No	No

Mass gatherings are defined by the WHO as events characterized by the concentration of people at a specific location for a specific purpose over a set period of time[11]. During the COVID-19 pandemic, mass gatherings carried out an important risk for an outbreak[8,11] yet, in countries were confinement measures were being lifted, these gatherings started to become more frequent; hence, safety measures began to emerge[11].

Safety protocols were put in place by the CDC and WHO[11,14] to prevent the spreading of the virus during mass events; among those protocols were as follows: encouraging staff and attendees to wash their hands often and cover coughs and sneezes with a tissue, avoid handshakes or other types of hand-to-hand contact, use respiratory masks throughout the event (especially if social distancing would be difficult to maintain), frequent cleaning, and disinfection of touched surfaces and using outdoor spaces as much as possible. In addition, the WHO developed a numerical score to each risk factor and mitigation measure of an event to calculate the overall risk and obtain one of the possible categories which are as follows: very low, low, moderate, or high-risk event[11,15]. Hence, the total mitigation score for our event was 79, with a total COVID-19 risk score of 1, which assigned our event to the category of low risk[15,16].

As stated before, this meeting took place in a Hotel-Hacienda in Michoacan, Mexico, which fulfilled the WTTC standards; in addition, masks were required to be worn at all times while being in the conference rooms and seating capacity was modified to allow for social distancing.

The academic meeting comprised 14 different activities that took place during the 3 days of the event; seven of these were academic activities such as workshops or conferences and seven were non-academic activities such as meals. In the survey, the participants were asked to rate from 0 to 100% the amount of time that they wore their face masks during each of these activities. We found that during the academic activities, which took place in conference rooms, the participants referred to have maintained the use of face masks over 95% of the time, we believe that the other 5% was due to the participants drinking coffee, water, and/or going to the restrooms. In contrast, during the non-academic activities, which either took place on outdoor areas or outdoor-ventilated areas, the participants stated to have worn face masks over 60% of the time; the later may be consequence of the time that they took to eat.

In regard to the only confirmed COVID-19 case after the event, this attendee referred to have maintained the use of a KN95 mask throughout the encounter; hence, as it was reported in a meta-analysis by Chu et al.[17], the use of face masks such as N95, surgical masks, and/or 12-16-layer cotton masks showed a large reduction in the risk of infection (RR 0.34, IC 95% 0.26-0.45)[17,18]. As it was stated before, all participants were required to use face masks during this event, especially when being in the conference rooms; thus, we believe that this participant may have been exposed to the SARS-CoV-2 previous to this meeting.

Academic meetings are a fundamental activity in the medical world; furthermore, they are not only paramount in the academic development of medical interns, residents, and faculty but they also have an impact on the economic, social, and emotional well-being of those who participate[11]. In addition, although medical education has had to evolve into a greater use of remote communication technologies since the pandemic, it is important to come up with strategies that can allow us to have these encounters in a safe and responsible way, as vaccines, as we now know, are not 100% effective in preventing transmission[11,19,20]. We recognize the limitations of our study, the survey was not planned in anticipation to the academic event, and only 73% of the attendees accepted to participate on this study; however, we consider this exploratory survey provided crucial information regarding the viability of the organization and possibility of contagion during these "in person" events and compliance of safety of measurements among attendees.

Conclusions

The implementation of safety measures in an academic meeting might effectively reduce the risk of contagious and are still relevant in the post-pandemic world.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that no patient data appear in this article.

Right to privacy and informed consent. The authors have obtained approval from the Ethics Committee for analysis and publication of routinely acquired clinical data and informed consent was not required for this retrospective observational study.

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