

WhatsApp Consultations in the Department of Electrophysiology of a Public Hospital of the City of Buenos Aires in Times of COVID-19

Consultas vía WhatsApp en un servicio de electrofisiología de un hospital público de la Ciudad de Buenos Aires en tiempos de COVID-19

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ABSTRACT

Background: Coronavirus (COVID-19) pandemic is highly infectious. Telemedicine emerges as an option to keep patients within the healthcare system.

Objective: The aim of this study was to implement WhatsApp consultations during 30 days in a hospital of the City of Buenos Aires (CABA) during the lockdown imposed due to COVID-19.

Methods: Consultations via WhatsApp were analyzed for 30 consecutive days. A form was sent prior to telephone consultation with the specialist. A descriptive analysis of consultations and proposed follow-up plans was carried out.

Results: A total of 263 consultations were performed in 205 patients. The average number of telephone consultations was 7.8 messages. The most common topics for consultation were palpitations (12%) and influenza vaccine (11.7%). Follow-up was divided into groups: 1) Solved via WhatsApp: 154 patients; 2) Referred to a local hospital: 25; 3) Referred to our hospital: 26 patients.

Conclusion: Telemedicine via WhatsApp can be developed in public hospitals of CABA, with a substantial reduction of in-person consultations.

Key Words: Coronavirus Infections - COVID-19- Telemedicine - Mobile Applications - Remote Consultation

RESUMEN

Introducción: La pandemia por coronavirus (COVID-19) es altamente contagiosa. La telemedicina emerge como una opción para mantener a nuestros pacientes dentro del sistema sanitario.

Objetivo: Implementar consultas por WhatsApp durante 30 días en un hospital de la Ciudad Autónoma de Buenos Aires (CABA) durante la cuarentena impuesta por COVID-19.

Material y métodos: Se analizaron consultas por WhatsApp durante 30 días consecutivos. Se envió un formulario antes de la consulta telefónica con el especialista. Se realizó un análisis descriptivo de las consultas y los planes propuestos para el seguimiento.

Resultados: Se realizaron 263 consultas en 205 pacientes. La cantidad promedio de consultas telefónicas fue de 7,8 mensajes. Las consultas más frecuentes fueron: palpitaciones (12%) y vacunación antigripal (11,7%). El seguimiento quedó dividido en grupos: 1) Resueltos vía WhatsApp: 154 pacientes; 2) Derivados a un hospital zonal: 25; 3) Derivados a nuestro hospital: 26 pacientes.

Conclusión: La telemedicina vía WhatsApp es factible de ser desarrollada en un hospital público de la CABA, con una sustancial reducción de consultas presenciales.

Palabras clave: Infección por Coronavirus - COVID-19- Telemedicina - Aplicaciones Móviles - Consulta Remota

INTRODUCTION

For several months the world has been affected by the pandemic caused by a novel, highly contagious coronavirus (COVID-19). (1) Therefore, the number of infected patients has increased exponentially. (2) After COVID-19 spread around the world in just a few months, the World Health Organization (WHO) char-

acterized it as a pandemic. (3)

The first affected countries saw the collapse of their health systems due to excessive demand for hospitalization in a very short period of time, with an extremely high number of deaths.

In Argentina, the first case of COVID-19 was confirmed on March 3, 2020. On March 20, Argentina en-

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tered a mandatory, preventive lockdown to limit the spread of the infection, thus allowing the reinforcement of the health system to cope with the pandemic. As a result, healthcare professionals were forced to drastically change their practice in order to slow down virus transmission. (4)

Telemedicine is a practice that is growing exponentially, but is likely to remain underused. The World Health Organization (WHO) states that e-health consists in “the cost-effective and secure use of information and communication technologies in support of the health and health-related fields including healthcare, health surveillance and health records, as well as education, knowledge and research”. (5)

Telemedicine has emerged as a critical technology to bring medical care while attempting to reduce the transmission of COVID-19 among patients, families, and healthcare personnel. (6, 7) It has also been increasingly necessary to preserve scarce resources like personal protective equipment (PPE). (8, 9)

Many digital platforms have contributed to accelerate this healthcare modality. (10) In Latin America, there are socio-economic restrictions for paid applications; and that is why free platforms like WhatsApp via text/voice messages, photos and video calls using mobile phones, has become an affordable tool for our patients. (11)

The purpose of this study was to assess the implementation of consultations using the free WhatsApp platform for 30 consecutive days during March and April 2020, in order to reduce in-person consultations in the Department of Electrophysiology of a public hospital in the City of Buenos Aires (CABA) in times of a pandemic. The secondary purpose was to compare the results between remote and in-person consultation in the same hospital during this period and during the same period in 2019.

METHODS

As of March 20, 2020, the day lockdown began in CABA, the Department of Electrophysiology of Hospital Bernardino Rivadavia in CABA, Argentina, notified all patients in our database about the availability of consultations via the WhatsApp platform.

Consultations received over a 30-day period (from March 25 to April 24, 2020) were analyzed. An easy-to-understand medical record and 5 simple questions formulated by our Department was sent to each patient contacted, to consider suspicion of COVID-19. The patient had to complete the requested data and accept the consultation with the medical specialists of the Department, as the first step of teleconsultation.

A descriptive analysis of the responses as well as the results of the telephone interviews was carried out.

Ethical considerations

Verbal consent was provided at the beginning of the telephone interview. The implementation of consultations via WhatsApp was clinical, and authorized by the Board of Directors of Hospital Rivadavia. Informed consent was obtained from all patients.

Results were compared with the healthcare results received during the same period of 2019.

RESULTS

Results of teleconsultations were divided into three groups:

- Group 1: Total cases solved via WhatsApp: 154 patients.
- Group 2: Total cases referred to a local hospital depending on the patient’s place of residence: 25 patients.
- Group 3: Total cases referred to Hospital Rivadavia: 26 patients. Group 3 patients were called upon to define the future conduct (diagnosis, complementary tests, and/or treatment adjustments).

A total of 263 consultations were made by 205 patients throughout the study (range: 1-29 consultations/patient), 114 of which were women (55.6%). Mean age was 60 (45–78) years. Regarding the number of consultations per patient, 132 corresponded to a single consultation, either for reading requested diagnostic studies, sending prescriptions or medical certificates via WhatsApp, or for referral to a specialist.

A total of 15 patients sent pending tests via WhatsApp to be read by the specialists. Twenty-four prescriptions were sent for tetravalent influenza vaccine.

Among the 26 patients referred for hospital in-person consultation, 3 were referred to the Febrile Emergency Unit due to suspected signs and symptoms of COVID-19. Isolation was recommended in 5 patients as they had recently arrived from countries considered at risk for COVID-19, and because they had telephoned 107 (Emergency Medical Care System, SAME).

Out of the 33 teleconsultations received for suspected arrhythmia, 23 were evaluated in the electrophysiology office, 12 were sent home after ECG or treatment adjustment, and 11 underwent invasive electrophysiological procedures. Two electrophysiological studies and three radiofrequency ablations were performed. The three ablations were due to typical atrial flutter: in 2 patients with implanted cardioverter defibrillator, atrial flutter caused inappropriate shocks despite optimal drug therapy, and in the remaining patient ablation was performed given the refractoriness to drug therapy and hemodynamic instability during the events.

In the 2 patients undergoing electrophysiological studies, one was admitted for Brugada syndrome with induced ventricular fibrillation during programmed ventricular stimulation, and an implantable cardioverter defibrillator was requested. The other patient had severe syncope, with no clear diagnosis. Symptomatic sinus node disease was confirmed, and a permanent pacemaker was indicated.

Patients with devices were rescheduled for the second half of May 2020, so implantable devices were not checked during the observation period.

Among the 205 patients analyzed, 187 did not have any medical coverage.

The comparison between this population and a population followed-up in-person during the same period in 2019 showed a reduction from 283 to 205 in the total number of consultations, with a clear change in the reason for consulting (Table 1). Requests for additional tests were significantly reduced (97.5%), as well as pacemaker follow-ups and invasive treatments.

DISCUSSION

The implementation of a telemedicine service using the free WhatsApp platform was highly effective for decision making in the ambulatory service of the Department of Electrophysiology of a public hospital. It significantly reduced the number of patients exposed to in-person consultations that were solved with this technology at no increased cost (Figure 1). At the same time, consultations to the Department of Electrophysiology of patients with suspected COVID-19 were avoided. Consultations to specialties other than ours were rapidly channeled.

The use of this technology allowed us to identify those patients with conditions that required attention in our Department. Due to this particular epi-

demiological situation, the reasons for consultation changed. It was possible to limit invasive procedures for more complex patients.

Requests for complementary studies were substantially reduced, following suggestions from different sectors, such as echocardiography and ambulatory ECG. Monitoring of implantable devices were completely cancelled. Similarly, invasive electrophysiological procedures were significantly limited: 60% for electrophysiological studies and 75% for radiofrequency ablation, following international recommendations. (12)

We believe that in-person healthcare cannot be entirely replaced by remote healthcare, but in the context of a pandemic, remote healthcare minimizes the risk for infection in patients, relatives, and healthcare personnel. (13)

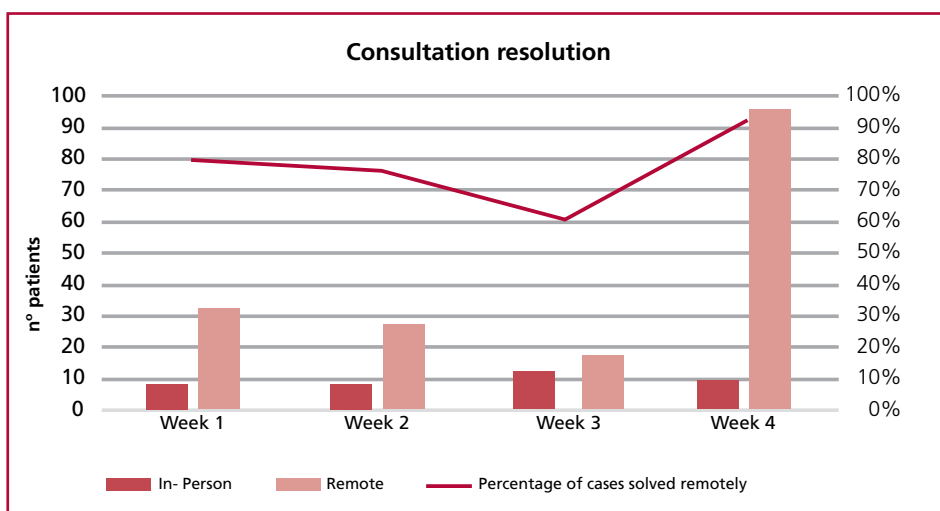
Furthermore, the implementation of free digital platforms clearly reduces in-hospital costs. Fewer outpatient consultations, complementary studies, and highly complex procedures confirm this reduction. Travel expenses are reduced for the patient in a time of economic crisis. Outpatient consultations, requests

Table 1. Comparative table of patients seen between March and April 2020, and those seen at the doctor's office in the same period of 2019

	Year 2019 (283)	Year 2020 (205)	p
Age	56 (53 - 63) years	60 (45 - 78) years	ns
Female gender	38.5%	55.6%	0.001
Palpitations	31.8%	12%	0.001
HT	2.1%	10.7%	0.001
Syncope	6%	3.4%	ns
Dizziness	9.2%	1%	0.001
Request for prescriptions, certificates, or reports	0%	10.2%	0.001
Consultation for influenza vaccine	0%	11.7%	0.001
Suspicion of COVID-19	0	3	0.001
Request for complementary studies	113	5	0.001
Pacemaker follow-up	50	0	0.001
EPS	5	2	ns
Ablation	12	3	0.06

HT: Hypertension. EPS: Electrophysiological study.

Fig. 1. Bar chart comparing -week by week- the number of remote vs. in-person consultations between March and April 2020.



for additional tests, implantable devices, and invasive procedures were also significantly reduced compared with the same period in 2019.

Limitations

Patients on their first consultation were not included, so we cannot draw any conclusions about this situation. No cost-benefit analysis was conducted, and conclusions on cost reduction are subjective. The short time period analyzed and the relatively low number of patients could affect the generalization of these results.

CONCLUSIONS

During a pandemic, telemedicine guided by experts via WhatsApp can direct the healthcare system to reduce non-essential consultations and procedures. It decreases the risk of infection and optimizes resources during this exceptional situation, resulting in a de-compression of the public health system.

Conflicts of interest

None declared.

(See authors' conflicts of interest forms on the website/ Supplementary material)

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