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) characterized 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-
tered a mandatory, preventive lockdown to limit the spread of the infection, thus allowing the reinforce-
ment 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 exponen-
tially, but is likely to remain underused. The World
Health Organization (WHO) states that e-health con-
sists in “the cost-effective and secure use of informa-
tion and communication technologies in support of
the health and health-related fields including health-
care, 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 in-
creasingly necessary to preserve scarce resources like
personal protective equipment (PPE). (8, 9)

Many digital platforms have contributed to accel-
erate this healthcare modality. (10) In Latin America,
there are socio-economic restrictions for paid applica-
tions; 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 imple-
mentation 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 consulta-
tion in the same hospital during this period and dur-
ing the same period in 2019.

METHODS

As of March 20, 2020, the day lockdown began in CABA, the
Department of Electrophysiology of Hospital Bernardino Ri-
vadavia in CABA, Argentina, notified all patients in our da-
tabase about the availability of consultations via the What-
App 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 re-
quested data and accept the consultation with the medical
specialists of the Department, as the first step of telecon-
sultation.

A descriptive analysis of the responses as well as the re-
sults of the telephone interviews was carried out.

Ethical considerations

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

Results were compared with the healthcare results re-
duced during the same period of 2019.

RESULTS

Results of teleconsultations were divided into three
groups:

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

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

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

Among the 26 patients referred for hospital in-per-
son consultation, 3 were referred to the Febrile Emer-
gency 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 sus-
pected arrhythmia, 23 were evaluated in the electro-
physiology office, 12 were sent home after ECG or
treatment adjustment, and 11 underwent invasive electrophysiological procedures. Two electrophys-
ological studies and three radiofrequency ablations
were performed. The three ablations were due to typi-
cal atrial flutter: in 2 patients with implanted cardio-
verter defibrillator, atrial flutter caused inappropri-
ate shocks despite optimal drug therapy, and in the
remaining patient ablation was performed given the
refractoriness to drug therapy and hemodynamic in-
stability 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 cardio-
vverter defibrillator was requested. The other patient
had severe syncope, with no clear diagnosis. Sympto-
matic sinus node disease was confirmed, and a perma-
nent pacemaker was indicated.

Patients with devices were rescheduled for the sec-
ond 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 epidemiological 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>
<thead>
<tr>
<th>Year 2019 (283)</th>
<th>Year 2020 (205)</th>
<th>p</th>
</tr>
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<tbody>
<tr>
<td>Age 56 (53 - 63) years</td>
<td>60 (45 - 78) years</td>
<td>ns</td>
</tr>
<tr>
<td>Female gender</td>
<td>38.5%</td>
<td>55.6%</td>
</tr>
<tr>
<td>Palpitations</td>
<td>31.8%</td>
<td>12%</td>
</tr>
<tr>
<td>HT</td>
<td>2.1%</td>
<td>10.7%</td>
</tr>
<tr>
<td>Syncope</td>
<td>6%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Dizziness</td>
<td>9.2%</td>
<td>1%</td>
</tr>
<tr>
<td>Request for prescriptions, certificates, or reports</td>
<td>0%</td>
<td>10.2%</td>
</tr>
<tr>
<td>Consultation for influenza vaccine</td>
<td>0%</td>
<td>11.7%</td>
</tr>
<tr>
<td>Suspicion of COVID-19</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Request for complementary studies</td>
<td>113</td>
<td>5</td>
</tr>
<tr>
<td>Pacemaker follow-up</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>EPS</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Ablation</td>
<td>12</td>
<td>3</td>
</tr>
</tbody>
</table>


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)

REFERENCES