

Pharmaceutical Conduct Applied to Pharmacies During the Sars Cov2 Pandemic (Covid-19)

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Abstract— *The new Coronavirus (COVID-19), has already infected more than 5 million people in more than 181 countries, has been causing numerous socioeconomic problems and increasing morbidity and mortality related to the infection. The virus still lacks adequate, effective and safe pharmacotherapy and even vaccinated people are still at risk of acquiring the disease. Therefore, the focus has been on prevention and health promotion, thus contributing to the reduction of transmission. In this context, the doctor, nurse, pharmacist, physiotherapist has been playing a fundamental and vital role in controlling the transmission of the disease and meeting the health needs of the community during the crisis, dissipating information based on evidence, epidemiological control and strengthening of rational use of medicines. This paper aims to address the pharmaceutical conduct in pharmacy during the COVID-19 pandemic.*

I. INTRODUCTION

The virus causing the pandemic was named SARS-CoV-2. This New Coronavirus generates a disease classified as COVID-19, being the agent of a series of pneumonia cases in the city of Wuhan (China)(CRODA; GARCIA, 2020). Without concrete information on the mechanism of action, nor unquestionable effectiveness measures for the clinical management of cases of human infection by SARS-CoV-2, there are still many details to be clarified. However, it is known that the virus causes an acute respiratory syndrome which ranges from mild cases – around 80% – to very severe cases with respiratory failure – between 5% and 10% of cases. Its lethality varies mainly according to the age group and associated clinical conditions(KENNETH MCINTOSH, MD; MARTIN S HIRSCH, MD; ALLYSON BLOOM, 2019).

SARS-Cov-2 proved to be a virus with high transmissibility, thus it was decreed a state of alert for

pandemic and the World Health Organization decreed quarantine in Brazil.

The easy access to community pharmacies makes them a strategic point for managing the care of Covid-19 suspects and for forwarding interprofessional work in the health care network (CADOGAN; HUGHES, 2020; ZHENG et al., 2020).

Pharmacists are the ideal professionals for preventing inadequate self-medication, reporting suspected mild cases and providing advice on medical care when necessary, as patients with health-related concerns choose to seek pharmacies as the first form of care (PERROT et al., 2019).

The International Pharmaceutical Federation (FIP) defined a list of attributes for pharmacists during the Covid-19 pandemic: evaluation of suspected and confirmed cases, as well as their risk stratification; determination of cases for referral; disease prevention, infection control, health

information and education for the public, among others(SOUSA PINTO et al., 2021).

Considering the above, it is possible to understand the relevance of performing pharmaceutical conduct with excellence, the importance of pharmaceutical care, thus reducing the workload generated to the health system during the Covid-19 pandemic.

II. THEORETICAL FOUNDATION

In the city of Wuhan, China, at the end of 2019, a series of cases of pneumonia of unknown etiology emerged, which generated a severe watery respiratory syndrome(DI GENNARO et al., 2020; LAKE, 2020). In January 2020, a few weeks later with a sample from the lower respiratory tract, the new Coronavirus (SARS-CoV-2) was identified as the causative agent of the pathogenesis(HUANG et al., 2020).

From the Coronaviridae family, the new Coronavirus has characteristics common to other members of this family. The virus has single-stranded RNA as its genetic material(KANNAN et al., 2020).

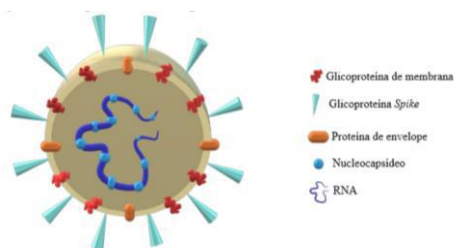


Fig.1: Morphologically, Coronavirus is enveloped, predominantly spherical, with approximately 150 to 160 nm in diameter. Its name originates from the presence of spicules that project from the viral envelope, giving the appearance of a crown (from the Latin corona) (Figure 1). The Coronavirus genome codes for four or five structural proteins, namely: Spike glycoprotein (S), membrane glycoprotein (M), envelope protein (E), nucleocapsid (N) and hemagglutinin-esterase (HE).(KANNAN et al., 2020). Image:(TÚLIO DI ORLANDO CAGNAZZO*, 2020)

The incubation period for COVID-19 is approximately 5 days, ranging from 3 to 14 days (LI; DE CLERCQ, 2020). The time from onset of symptoms to the fatal outcome, when it occurs, is approximately 6-41 days, with an average of 14 days(ROTHAN; BYRAREDDY, 2020).

Second Bulut and Kato (2020) Covid-19 can be classified according to its seriousness in 5 groups: I - Asymptomatic Infection: when there is no symptom with a positive diagnosis for SARSCoV-2; II - Mild symptoms:

symptoms of upper respiratory infection, including fever, fatigue, myalgia, cough, sore throat, runny nose and sneezing, no pneumonia; III - Moderate: with pneumonia, frequent fever and cough; there may be wheezing but not hypoxemia like shortness of breath; IV - Severe: rapid progression within a week, dyspnea with central cyanosis, oxygen saturation less than 92% and other manifestations of hypoxemia; Critical: patients with Acute Respiratory Distress Syndrome (ARDS) or respiratory failure, shock, organ failure.

However, clinical protocols and therapeutic guidelines to guide clinical practice have been developed by countries and health organizations(MINISTRY OF HEALTH, 2020). As a result, even without strong scientific evidence, many drugs have been used empirically in an attempt to minimize the lethality of COVID19. This situation has been seen at different levels of health care and alerts to the risk of iatrogenic in health care(PAU et al., 2021).

Pharmaceutical services aimed at promoting the Rational Use of Medicines (URM), comprises a prescription that is adequate to the health condition, timely access and the use, with defined intervals and time, of cost-effective, safe, effective and quality medicines(MINISTRY OF HEALTH, 2001).

A study by ZHENG et al. (2020)indicate a model of pharmaceutical service during the COVID-19 pandemic. These authors report that the pharmacy, through pharmacists, can promote approach to patients in the direct interaction between professional and patient. Figure 2 shows six pharmaceutical services to be provided by the professional.

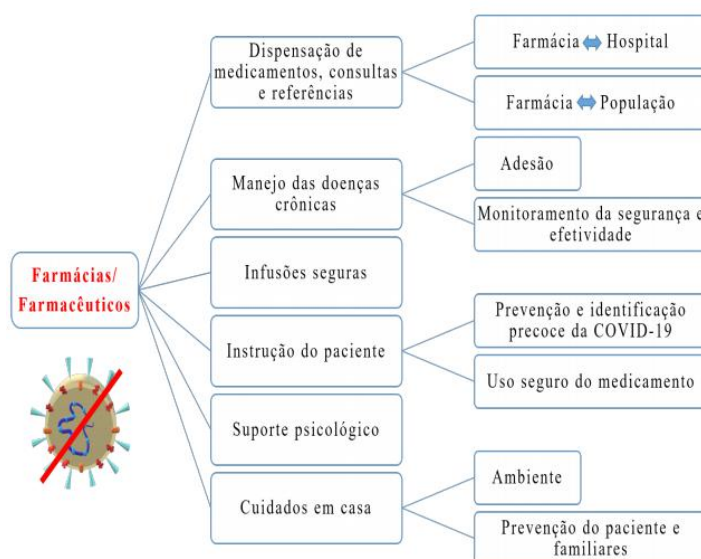


Fig.2: Pharmaceutical service model during the COVID-19 pandemic. Source: Modified from (ZHENG et al., 2020)

III. METHODS

This study consists of a literature review, classified as exploratory and descriptive. The work carried out is of a quali-quantitative nature. Qualitative data analysis is performed intuitively and inductively during the survey of the theoretical framework. It is also quantitative through the use of the multicriteria method. The bibliographical research was carried out in the following databases: *US National Library of Medicine* (Pub Med), Scientific Electronic Library online (SCIELO), Caribbean Latin American Health Science Information System (LILACS), Science Direct (Elsevier) and Embase.

The search in the databases was performed using the terminologies registered in the Health Sciences

Descriptors created by the Virtual Health Library developed from the Medical Subject Headings of the US National Library of Medicine, which allows the use of common terminology in Portuguese, English and Spanish. The keywords used in Portuguese for searching the databases were: Coronavirus, COVID-19, SARS-CoV-2, Pharmaceutical care. As a tool to support the decision in the selection and prioritization of articles, a set of criteria were considered essential to represent the state of the art of the subject of research. This method has the following characteristics: (i) rigorous logic allows the acceptance of the method as a decision support tool; (ii) simple to be understood and applied with results that are easy to interpret.

IV. RESULTS AND DISCUSSION

The Federal Council of Pharmacy establishes the internationally recommended steps:



PREPARE	<ul style="list-style-type: none"> • Acquire, store and distribute medicines and other health products to meet demand; • Manage the pharmacy so that the flow of suspected cases and cases minimizes the spread of the virus; • Define an isolated area for the care of confirmed cases, probable cases of covid-19, based on technical parameters; • Develop emergency plans and local work flow;
IDENTIFY	<ul style="list-style-type: none"> • Carry out clinical screening and rapid tests in suspected cases, close contact and home contact that access the pharmacy; • Notify confirmed cases and suspected cases;
ISOLATE	<ul style="list-style-type: none"> • Direct confirmed or suspected cases, according to severity and risk of complications, to primary health care, or home isolation; • Monitor the evolution of confirmed cases, probable cases and mild symptomatic suspected cases; • Monitor the health status of the team and recommend isolation if any member meets the definition of a confirmed or suspected case;
TO CONTAIN	<ul style="list-style-type: none"> • Promote infection containment and symptomatic relief of confirmed mild cases and suspected cases; • Renew prescriptions for continuous-use medications for asymptomatic patients with non-chronic diseases Promote infection containment and symptomatic relief of confirmed mild cases and suspected cases; • Renew prescriptions for continuous-use medications for asymptomatic patients with chronic non-communicable diseases; • Educate the team and establish work processes that provide environmental and occupational protection in order to minimize the risks of contamination; • Inform and educate the community, the work team and the service manager with official information based on scientific evidence.transferables; • Educate the team and establish work processes that provide environmental and occupational protection in order to minimize the risks of contamination; • Inform and educate the community, the work team and the service manager with official information based on scientific evidence.

Following Technical Note, Technical Note 03/2020, Chloroquine/hydroxychloroquine is being used as a contingency plan for COVID-19 in hospitals and Emergency Care Units (UPAs), with special attention to QT interval prolongation, elevated cardiac enzymes and disorders important hydroelectrolytics. In view of the narrow therapeutic range of chloroquine and hydroxychloroquine and their possible adverse effects (prolongation of the QT interval, elevated cardiac enzymes and important electrolyte disturbances), SESA published Technical Note No. 04, of April 12, in which it guides professionals the need to report the use of and suspected adverse reactions to the drugs hydroxychloroquine and chloroquine.

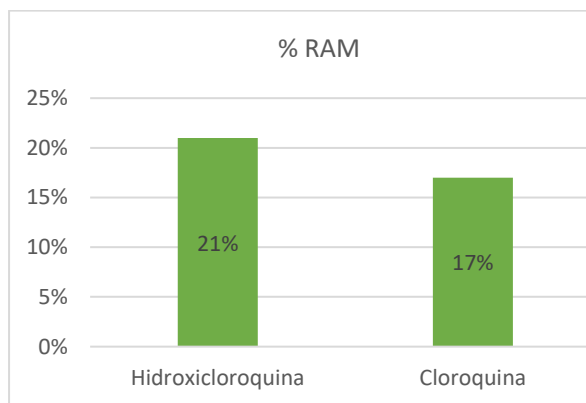


Fig.3: Adverse reactions associated with the use of chloroquine and hydroxychloroquine from 1968 to November 2020 accounted for 21% of ADR reports to chloroquine and 17% of ADRs attributed to the use of hydroxychloroquine. Considering the entire historical series, the year 2020 was the one with the highest number of ADRs for chloroquine and the third highest incidence of ADRs for patients using hydroxychloroquine. (Source:LINDQUIST, 2008).

In a study carried out in Ceara from April to May 2020, 996 uses of hydroxychloroquine (or chloroquine) and azithromycin were reported in the treatment of hospitalized patients with COVID-19. The notifications contained some drugs that were introduced due to the worsening of the patient's clinical condition. 98.8% of cases were reported by pharmacists and the most reported AMI were renal failure(CABRAL, et. al., 2020).

SecondRismanbaf and Zarei (2020), liver and kidneys can be damaged in patients with COVID-19, which can make it difficult to reach the therapeutic dose of the drugs and increase the risk of adverse reactions.

The creation of a form for monitoring the use and recording of adverse drug events, prepared in the urgency of the actions raised by the COVID-19 pandemic, was

designed as an aid tool to monitor the use of drugs, helping to avoid their use irrational use of medications.

V. FINAL CONSIDERATIONS

The experience of using unknown drugs for the purpose of treating COVID-19 provides an opportunity to exercise the rational use of drugs, as more adequate doses and regimens for patients can be defined. In addition, monitoring the use and monitoring of adverse drug reactions can result in the reduction of personal injuries and avoid possible financial waste.

Considering the above, it is possible to understand the relevance of performing pharmaceutical conduct with excellence, the importance of pharmaceutical care helping to prevent the transmission of COVID-19 and guiding the rational use of medicines, thus reducing the workload generated by the system during the Covid-19 pandemic.

There was a need for the pharmacist to make it clear that there is still no effective vaccine or specific therapy for COVID-19. In the case of suspicious symptoms such as fever, cough and fatigue, individuals should be advised to seek medical help and follow the professional's guidelines, explaining all precautions from good hygiene to social isolation, especially in suspected cases.

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