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Medical Staff Facing COVID-19 Disease at the University Clinics of Lubumbashi in DR Congo in 2021

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ABSTRACT

Introduction: *This study aimed to determine the prevalence of COVID-19 among healthcare workers; to describe the means of prevention used by these nursing staff and to determine the behavior and attitude towards the disease of these nursing staff of the University Clinics of Lubumbashi.*

Methods: *This is a descriptive cross-sectional study from January 1, 2021 to June 31, 2021 among all healthcare providers (doctors and nurses) working at the University Clinics of Lubumbashi.*

Results: *Out of 391 caregivers surveyed, including 246 doctors and 145 nurses, we observed a prevalence of 10.99% that is 43 caregivers, including 28 doctors, ie 65.12% and 15 Nurses or 34.88% whose average age was 40 ±6 years, with a predominance of men (56%) that is sex ratio of 1.26 in favor of men. It is important to note that most cases were diagnosed clinically, ie 62.79% of cases.*

The saliva droplets were themode of infection of COVID-19 the most experienced by caregivers with 58.14%, followed by physical contact with a rate of 39.53%. The wearing ofmask and hydro-alcoholic friction were the most cited by caregivers as the most effective means of prevention, which they applied and advised patients. Most of the caregivers were subjected to chloroquine and azythromycin, the others admitted to using the traditional treatment of inhaling the vapors of several wild leaves and trees, in particular: lemon, mango... is about the outcome of the disease, almost -all of the nursing staff were cured, ie 97.67% of cases.

Conclusion : *The prevalence of COVID-19 disease among caregivers was 10.99%, however it is observed that active screening was not carried out and the cases observed presented almost all of the clinical signs and the clinical diagnosis was used for all cases, hence its underestimation. It would be important to regularly screen exposed caregivers and make personal protective equipment regularly available and monitor barrier measures.*

Keywords

Prevalence, Nursing staff, COVID-19.

Introduction

Over the past 20 years, the world has experienced several outbreaks of infectious diseases characterized by high speed of transmission, such as a Currently with the infectious disease outbreak called COVID-19 [1,2].

Due to its speed of spread, its magnitude in terms of people infected, its deadly nature and its consequences on the economy and social well-being, the coronavirus (COVID-19) constitutes

a real health concern for the international community and for country governments. It was declared as a pandemic by the World Health Organization on March 11, 2020 [3,4].

This study aimed to determine the prevalence of COVID-19 among healthcare workers; to describe the treatment administered to infected personnel and the means of prevention used by these nursing staff and thus determine the behavior and attitude towards the disease of these nursing staff at the University Clinics of Lubumbashi.

Methods

The setting chosen for this study was the University Clinics of Lubumbashi (CUL), the hospital of last reference according to the health pyramid of the Democratic Republic of Congo.

This is a cross-sectional descriptive study from January 1, 2021 to September 30, 2021 among all healthcare providers (doctors and nurses) working at the University Clinics of Lubumbashi. We opted for accidental non-probability sampling according to the inclusion and non-inclusion criteria. The collection of data was carried out in an exhaustive manner among all the care providers working within the University Clinics of Lubumbashi.

The basic ethical principles were respected, in particular: the necessary authorizations were obtained from the academic authorities and University Clinics of Lubumbashi and the discretionary nature was observed in the analysis of the data.

Results

Out of 391 caregivers surveyed, including 246 doctors and 145 nurses, we observed a prevalence of 10.99% that is 43 caregivers, including 28 doctors, i.e. 65.12% and 15 Nurses or 34.88% whose average age was 40 ± 6 years, with a predominance of men (56%) that is sex ratio of 1.26 in favor of men.

Table 1: Category of pprofessional, mode of diagnosis of the disease, treatments administered andoutcome of the disease.

Professional	***Workforce (n)***	***Percentage (%)***
Doctor	*28*	*65.12*
Male nurse	*15*	*34.88*
Total	***43***	***100***
Mode of diagnosis of the disease		
Diagnostic	***Workforce (n)***	***Percentage (%)***
Clinical diagnosis	*27*	*62.79*
Paraclinical diagnosis	*16*	*37.21*
Treatments administered		
Treatments	*Effective* (n=43)	*Percentage (%)*
Chloroquine	*41*	*95.35*
Azythromycin	*41*	*95.35*
Heparin	*23*	*53.49*
Type 1 and 2 interferons	*4*	*9.30*
Traditional treatment	*2*	*4.65*
Outcome of the disease		
Issue	*Effective*	*Percentage (%)*
Healing	*42*	*97.67*
Death	*1*	*2.33*

It is important to note that most cases were diagnosed clinically, ie 62.79% of cases. The contaminated caregivers were subjected to chloroquine and azythromycin, all admitted to using the traditional treatment of inhaling the vapors of several wild leaves, inhaling viks and tree bark, in particular: lemon, mango...is about the outcome of the disease, almost -all of the nursing staff were cured, i.e. 97.67% of cases.

Table 2: Barrier measures applied by caregivers when they are in service.

Application of a measurefencein the service	***Effective* (n=43)**	***Percentage (%)***
Once	*1*	*2.33*
Twice	*43*	*100*
Three times	*41*	*95.35*
Four times	*17*	*39.53*
Five times,	*6*	*13.95*
Every time	*2*	*4.65*

With regard to the use of barrier measures and the recognition of the disease, caregivers only apply two barrier measures to services (nose mask and hydro-alcoholic friction) i.e. 100%

They were the most cited by caregivers as the most effective means of prevention, which they applied and advised patients.

Saliva droplets were the most known mode of contamination of COVID-19 by caregivers with 58.14%, followed by physical contact with a rate of 39.53%.

Most of the nursing staff were contaminated in August with a rate of 18.60% followed by January with16.28% of cases.

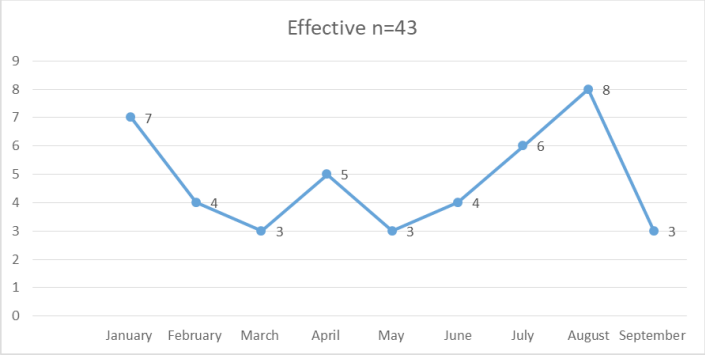

Figure 1: Distribution of COVID-19 sick cases by month.

The saliva droplets were the mode of contamination of COVID-19 the most experienced by caregivers with 58.14%, followed by physical contact with a rate of 39.53%. The wearing of mask and hydro-alcoholic friction were the most cited by care givers as the most effective means of prevention, which they applied and recommended to patients.

Discussion

This study aimed to determine the prevalence of COVID-19 among healthcare workers; to describe the means of prevention

used by these nursing staff and to determine the behavior and attitude towards the disease of these nursing staff of the University Clinics of Lubumbashi. We observed a prevalence of 10.99%, the application of barrier measures, such as: wearing a mask and hydro-alcoholic friction were the most cited by caregivers as being the most effective means of prevention, which they applied and advised patients.

Saliva droplets were the most known mode of contamination of COVID-19 by caregivers with 58.14%, followed by physical contact with a rate of 39.53%.

In view of these results, we reaffirm that our study method has enabled us to achieve the objectives that we have set ourselves for this study.

With respect to prevalence, our results are close to those found in London by Houlihan C et al. [5] out of 200 nursing staff where they found a prevalence of 9.3%; While Gracia B et al. in Barcelona had a prevalence of 6.7% [6], slightly lower than ours. Contrary to the results obtained during the epidemic outbreak in Quebec in the epidemiological survey of healthcare workers affected by COVID-19 in 2020 [7] with a prevalence of 84% for 4047 healthcare personnel. This difference can be explained by the fact that this study in Quebec was conducted exclusively on caregivers working in a COVID-19 case institution.

Doctors are the most affected, 65.12% of cases compared to nurses in our study. Zhan et al. [8] in their analysis of 3387 healthcare workers found that 21 doctors were identified and only 1 nurse. In Quebec 28% of cases were made up of nurses in a study conducted by the National Institute of Public Health [7] in this study it was possible to affirm that the risk is 3.2 times higher in nurses and lower at 0 .4 times among doctors. While in the study conducted by the International Council of Nurses in 2020 [9], they had 0.28% of infected nurses lost their lives. According to the same advice; this is justified by the fact that nurses spend more time in the hospital and are more exposed than other health workers. However, the difference with our study, Regarding the mode of contamination, studies conducted by the Ontario Agency for Health Protection and Promotion [10] and Zhou J et al. [11] recognize several modes of contamination and for them the droplet route remains preferential. Indeed, as highlighted by the point of view of Klampas et al. [12], they have demonstrated that talking and coughing can generate aerosols or that it is possible to find SARS Cov2 RNA in the hospital environment. This is the reason for the so-called barrier preventive measures for preventing and combating the spread of the disease set by the WHO [13].

Nose masks and hydroalcoholic friction are the most used means of prevention against COVID-19 in our 100% study. Current data on the corona virus indicate that [14]: the virus is sensitive to common disinfectants, it is stable in urine for at least 24 hours at room temperature, it is stable for at least 4 days longer in diarrheal stools compared to with normal stools or it may be found up to the sixth hour. In the DRC [15] the standard precaution guide for the management of the COVID-19 pandemic includes hand hygiene and the use of personal protective equipment in the event of direct and indirect contact with blood, body fluids, secretions including respiratory secretions.

Conte Jean A and collaborators [16] in their study observed a regular decrease in positive cases of COVID-19 in parallel with the implementation of the continuous wearing of surgical masks and the wearing of other protective equipment during patient care. COVID-19. In Quebec, a study by the National Institute of Public Health [7] also showed that the percentage of people who wear both masks; gloves and eye protection with or without a white coat accounted for 5%; while that having used only a mask as a service barrier measure was 71% and the percentage of people having always used all the service barrier measures was less than 20%. The use of a mask alone is not guaranteed to stop infections and must be combined with other preventive measures including: hand hygiene with liquid alcohol and avoiding close contact with a patient [17]. The main reasons for non-compliance with the barrier measures reported in our studies by healthcare staff are: lack of equipment: the hospital does not provide the means of protection; staff are forced to take care of themselves to protect themselves, difficulties in accessing equipment (due to lack of means to obtain it); lack of time: often for emergencies, the time to apply the means of protection is reduced and often, Wang J [18] him in his study found as an obstacle in the application of barrier measures the shortage of protective equipment. Zhiruo zhang and collaborators [19] in Wuhan found the following obstacle: poor understanding of the virus and disease, lack of experience and training of staff in disease prevention, lack of equipment.

In our study, only 37.21% of the nursing staff were diagnosed with COVID-19 positive on the basis of a PCR serological examination. This observation is superimposed on that of Houlihan C and collaborators [5] who showed in their analysis in London that out of 200 caregivers, 58% were symptomatic but PCR negative. While Gracia B et al. in Barcelona [6] claim that in the 11.2% of healthcare workers who presented symptoms suggestive of COVID-19 only 8.84% were diagnosed by positive PCR. The WHO encourages systematic screening for healthcare personnel to identify healthy carriers [13].

Data on contaminations and deaths of health workers are not systematically recorded in many countries and so far no studies have been carried out to better understand the situations at risk of transmission for caregivers [9].

For our study, the month of August, 18.6% followed by the month of January, 16.28% were the most affected months. This therefore corresponds to the second wave started on December 16, 2020 and the third wave started in June 2021 (June 03, 2021) where the peak of cases for the third wave was reached in August 2021 (August 11, 2021) in the Province of Haut Katanga, this is how the provincial Minister of Health Dr Joseph Sambi [20] announced that both

public and private hospitals in Lubumbashi were inundated with patients and the resuscitation rooms were no longer able to contain all the patients sick with regard to treatment, almost all of the nursing staff, i.e. 95.35% of cases, had been put on Chloroquine and Azythromycin when they developed the COVID-19 disease, in accordance with the therapeutic protocol of the DRC drawn up by the technical secretariat including Azytromycin and Chloroquine in the management of COVID-19 [21].

A peculiarity for this study is the fact that all admitted to using the traditional treatment of inhaling the vapors of several wild leaves, tree bark,vickysinhalein particular: lemon, mango…

In Africa, traditional medicine is practiced in different forms, in Benin for example, it is a mixture of artemisia combined with other plants that is often prescribed. “We use artemesia much more in prevention with plant antibiotics called Tchayo. It is an antibiotic from the azithromycin family and we also add vitamins Assignon C, 2021 [22].

Compared to the outcome of the disease, it was good in 97.67% of cases against 2.33% of death. In China; a study conducted by Zhan M revealed that out of 3,387 positive COVID-19 patients in 2020, healthcare workers represent 44% and among them there were only 27 deaths, i.e. only 0.8%. McMichael TM et al. [23] found in their study in Washington a cure rate of 82.17% out of 129 caregivers with only 17.83% death. We support Zhan's point of view, which justifies this by the fact that care is taken early by the nursing staff as soon as the first symptoms appear [8].

Speaking of the fight against the spread of COVID-19 infection, 72.09% of healthcare staff in our study said they had had time to advise their patients on compliance with barrier measures. Michael TM and his collaborators [23] in their study carried out in Washington on 129 cases affirmed that the insufficient knowledge of the barrier measures by the patients was recognized as a risk factor for the nursing staff in the services. In the WHO guide on the use of barrier measures, wearing a medical mask can help limit the spread of certain respiratory diseases.

The study had some limitations, in particular on the choice of personnel including only doctors and nurses and the oratorical nature of the identification of the modes of contamination of caregivers.

Conclusion

During our study on healthcare personnel facing COVID-19 disease at the University Clinics of Lubumbashiduring the period from January 1 to September 30, 2021, we found that the prevalence of COVID-19 disease among healthcare workers was 10.99**%,**thenose mask and hydro-alcoholic friction were the means of prevention of COVID-19 disease most used by nursing staff in the departments, droplets of saliva were recognized as the source of contamination, the diagnosis was more clinical than paraclinical, the treatment complied with the national policy protocol in combination with traditional therapy carried out clandestinely in or outside the hospital.

Knowing that the COVID-19 pandemic is everyone's business, everyone's strong involvement would be necessary to fight against the spread of COVID-19 disease in hospitals, given that hospitals constitute a significant contamination, for nursing staff and other patients not infected with COVID-19 disease. We must encourage an active screening system among caregivers and awareness on the application of barrier measures.

Other causality studies on the risk of contamination of healthcare personnel with COVID-19 will have to be carried out in order to provide solutions so that the hospital is a safe place for caregivers and patients.

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