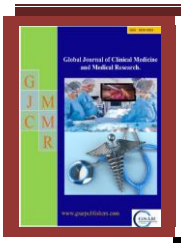

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The return to work after COVID-19 among healthcare workers of Hassan II University Hospital in Fez, Morocco

BY

Leila Belaroussi[1], Badr Moukafih[2], Leila Nahim[3], Bennaceur Benali[4]

[1]Occupational Health Department-CHU Hassan II-Fez, Epidemiology and Health Sciences Research Laboratory, Faculty of Medicine, Pharmacy and Dentistry, Sidi Mohamed Ben Abdellah University, Fez, Morocco.
[2]Pharmacy Department, CHU Hassan II-Fez, Faculty of Medicine, Pharmacy and Dentistry of Fez, Sidi Mohammed Ben Abdellah University, Fez, Morocco.
[3,4]Occupational Health Department-CHU IbnSina-Rabat, Faculty of Medicine, Pharmacy and Dentistry, Mohamed V University, Rabat, Morocco.

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Abstract

In the context of the COVID-19 pandemic, the main mission of occupational health services is to ensure the protection of all healthcare personnel. The effects of this pandemic on the work world have been particularly significant, leading to a sharp increase in work stoppages, whether during lockdown or due to extended sick leaves caused by COVID-19.

Furthermore, the occupational health services are increasingly called upon to deal with return-to-work issues, especially during return-to-work visits after disease. A retrospective study was carried out on 200 cases of confirmed COVID-19 victims, recorded during occupational medicine return visits between 2020 and 2021 at the Hassan II University Hospital in Fez, Morocco.

The aim of this study is to investigate the impact of the disease on work, taking into account the severity of clinical signs both during the disease and upon resumption, the extent of absenteeism, and the identification of the circumstances of occurrence, in order to develop appropriate prevention measures.

Keywords: *Occupational physician, healthcare workers, return to work, COVID-19.*

INTRODUCTION

The occupational medicine is an exclusively preventive medical specialty, with no treatment except in emergencies. The role of the occupational physician is to prevent any deterioration in the health of workers due to their professional activity, by monitoring their hygiene conditions at work, the risks of contagion, and their health condition, as well as any threat to the safety of others.

In the context of the COVID-19 pandemic, the main objective of occupational health services is to ensure the protection of all healthcare personnel. The effects of the pandemic on the work world have been significant, resulting in a sharp increase in work stoppages, whether due to lockdown or extended sick leave caused by COVID-19. In addition, the occupational health services are increasingly called upon to answer questions relating to the return to work, particularly during resumption visits after COVID-19 disease.

The aim of this study is to investigate the impact of the disease on work, in order to develop appropriate prevention measures.

Objective and method

Study and organization context

A retrospective and descriptive study was carried out on 200 cases of workers confirmed as victims of COVID-19. These cases were recorded at the time of the occupational medicine resumption medical examinations, occurring between 2020 and 2021 at the Hassan II University Hospital in Fez.

Statistical methods

The study involved the elaboration of an anonymous questionnaire designed to exploit the medical records of staff who had tested positive for COVID-19 at Hassan II University Hospital. It included four items:

*Corresponding Author: **Leila Belaroussi**

- The first item concerns socio-professional characteristics (gender, age, and job position).
- The second item explores potential workplace factors (department of assignment, exposure, wearing of EPI) that could contribute to contamination.
- The third item details symptoms and medical management.
- The fourth item deals with return-to-work modalities, specifying the duration of lockdown, the length of extended sick leave, and symptoms on returning to work.

The objective of this descriptive study is to investigate the impact of the disease on work, considering the severity of clinical symptoms during the disease and at the time of resumption, the extent of absenteeism, and identifying the circumstances of occurrence to develop appropriate prevention measures.

Results

Participants

The female gender represents 70% of the cases recorded among healthcare workers. 62.5% are aged between 36 and 45 years. Concerning medical history, 29% of the workers have chronic diseases, among which asthma is predominant (7.5%), followed by diabetes (1.9%), and allergic rhinitis (1.9%).

An analysis of participation by job position reveals that nurses account for 63.5%, followed by residents and interns at 36%, administrative staff at 7.5%, and finally university hospital staff at 1.5%.

In the context of risk assessment for transmission, the most affected departments, in order of frequency, are dermatology (11.1%), radiology (10%), resuscitation (9.5%), and ORL (7.2%). Among the victims, 66% are healthcare professionals working in facilities handling confirmed COVID-19 cases. Additionally, 3.5% of healthcare professionals work in laboratories and have handled samples from a confirmed COVID-19 case, while 0.5% work in occupational health department.

Descriptive data

52.5% were within 1.5 meter of an infected person for 15 minutes or more over a 24-hour period, and 13.5% were in direct face-to-face contact during a cough or sneeze, regardless of distance and duration. 94.9% are colleagues from the same workplace or hospital department, and 7.9% were from the same household. 3% shared public transport for more than 15 minutes and within 1 meter of physical distance. For protective measures, mask-wearing and barrier measures were respectively respected with by 96.5% and 97.5% in the workplace (100%) and outside the workplace (95%).

From a clinical perspective, 95% of healthcare workers presented symptoms suggestive of COVID-19. The duration between the presumed contact with a confirmed case of COVID-19 and the onset of symptoms is less than 4 days in 9.5%, and undetermined in 89.9%.

Concerning the symptoms associated with the COVID-19 episode, cough represents 74.7%, fever 67.7%, headache 60%, anosmia 45.5%, agueusia 34.3%, erythematous skin lesions 0.5%, transient visual blur 1%, insomnia 0.5%, thoracic pain 4.5%, intense fatigue 49.5%, respiratory difficulty 10.1%, diarrhea 31.3%, and abdominal pain 17.7%.

In 96.5% of cases, the RT-PCR was positive, with the time between PCR testing and the onset of symptoms ranging from 1 to 5 days (1 day in 30.3%, 2 days in 14.5%, 3 days in 7.3%, 4 days in 7.3%, 5 days in 4.5%).

Thoracic CT scans were performed in 2% of cases, showing lesions suggestive of COVID-19 with high D-dimer levels (200 µg/l, 74 µg/l, and 1520 µg/l).

Among symptomatic individuals, 3.5% tested negative on RT-PCR, with 1% showing positive serologies (IgM at 78.51 u/l and 1.34 u/l). For those initially considered false negatives (0.5%), their RT-PCR results turned positive on the 7th day of symptom onset. On the other hand, 10% of asymptomatic individuals had positive RT-PCR results.

The COVID-19 has a strong impact on absenteeism at work. The medical management is provided at home during the lockdown (96.9%). The hospitalization was indicated for 2.1% of individuals who experienced a worsening of their health condition. The duration of hospitalization was 7 days and 40 days for the cases recorded.

The evolution of clinical and scientific data has led to a reduction in the duration of lockdown from 14 days to 10 days for symptomatic cases and 7 days for asymptomatic cases. The 14-day lockdown period applies to 59.8% (i.e. 1674.4 days lost from work), 10 days to 38.7% (i.e. 774 days lost from work), and 7 days to 1.5% (i.e. 21 days lost from work).

A return-to-work visit is recommended once the period of lockdown has expired. 55% of COVID-19 victims were asymptomatic at the time of return to work. The symptoms that persisted after the duration of lockdown included asthenia (14.4%), dyspnea (10.3%), coughing fits (18.5%), diarrhea (1.5%), psychological sequelae such as anxiety (1, 5%), anosmia and agueusia (0.5%), dry mouth (0.5%), lumbar pain (0.5%), headache (1%), erythema-like skin lesions (0.5%) and thoracic pain (2.1%).

The extension of work stoppages is indicated for workers presenting clinical signs incompatible with a return to work (marked asthenia, coughing fits, dyspnea, thoracic pain, diarrhea, etc.), with extensions ranging from 4 days (3.1%), 5 days (1.3%) to 7 days (2.5%) depending on the duration of home lockdown.

In Hassan II University Hospital, the total duration of work stoppages caused by COVID-19, excluding hospitalizations, ranges from 7 days to 21 days. At the time of returning to work (94.9%), the RT-PCR control is not indicated.

Principal results

The delayed completion of the RT-PCR test is noted as a factor that may favor the transmission of the disease within

*Corresponding Author: **Leila Belaroussi**

the healthcare facility. At the time of this study, the return to work was conditioned by the type of symptoms at the time of resumption, with the persistence of cough being the main contraindication for resumption. Finally, the impact of COVID-19 on work is represented by absenteeism, with 2800 days lost.

Discussion

The different risk levels are distinguished based on professional categories:

- Very high-risk workers: healthcare professionals (doctors, nurses, dentists) performing procedures that generate aerosols (aerosol-generating procedures or AGPs) on patients suspected or confirmed to have an infection (bronchial fibroscopies, dental procedures, etc.), and personnel handling samples from suspected patients (especially in laboratories).
- High-risk workers: healthcare or care professionals exposed to patients suspected of infection, transport professionals for the sick, employees in mortuary services.
- Medium-risk workers: all employees with very frequent contact with the general population (school professionals, professionals in high-density population areas, certain retail businesses).
- Lower-risk workers: workers with infrequent contact with the public or colleagues in the same workplace [1]. In our case, the most affected workers belong to the very high and high-risk categories.

According to the literature, the proportion of asymptomatic infections varies from 18% to 88% [2]. In our study population, 10% were asymptomatic. The most frequently reported clinical signs were pneumonitis, with its attendant aspecific symptoms: cough, fever, dyspnoea, rhinorrhea, pharyngitis, and thoracic pain. Headache, myalgia, chills, and sweating have also been reported [3]. Digestive disorders such as nausea, vomiting, and especially diarrhea have been described more frequently in geriatric environments than in the general population [3].

The frequent occurrence of anosmia or hyposmia, agueusia, or hypogueusia has prompted clinicians to consider the interest of these signs in routine practice to guide diagnosis. In our study, anosmia was present in 45.5% of cases, and agueusia in 34.3%.

Purplish skin lesions on limb extremities, such as frostbite, or facial erythema have been reported, particularly in children, adolescents or young adults with mild forms of the disease. Urticarial lesions have also been reported [4]. In our study, erythematous lesions on the limbs were observed in 1% of the studied population.

The recommendations indicate that anyone presenting symptoms suggestive of COVID-19 should not go to their workplace, in order to limit the risk of contagion. However, in our study, we found that this was not always the case; symptomatic individuals went to work and did not perform RT-PCR until 24 hours or even 4 days after the onset of symptoms. This could be a factor favoring transmission of the disease in the workplace. The current scientific data on the estimated duration of contagiousness and viral excretion suggest that contagiousness is significant in the 24 to 48 hours preceding the appearance of the first clinical signs, and persists for 7 to 10 days [5].

It is not ruled out that in certain specific cases, such as immunosuppression, contagiosity may persist beyond the period of 7 to 10 days, but probably not in cases with a good prognosis eligible for a swift return to work [6].

The RT-PCR is not carried out on resumption, as the presence of viral RNA beyond J10 is interpreted essentially as evidence of residual virus in dead cells that have not yet desquamated, inactive viral particles released from the lung during exhalation, or even residual live virus coated with antibodies. The RT-PCR test positivity does not correlate with contagiosity [5]. Currently, it is not recommended to systematically perform control RT-PCR tests to ensure negativity before returning to work. This criterion, if taken into consideration, would be a factor delaying return to work, especially in cases where the duration to obtain a negative RT-PCR result is very long [5].

The return to work is therefore conditional on the absence of clinical signs suggestive of infection. The clinical practice shows that the symptoms determining return to work are often asthenia, dyspnoea, the presence of irrepressible coughing fits, or thoracic pain, leading to the extension of many work stoppages to 14 days, and sometimes more, as was the case in our study. The presence of anosmia, agueusia, or residual irritative cough, if limited, is not a contraindication to return to work [5]. Occasionally, after returning to work, workers still suffer from anxiety-related repercussions, or even post-traumatic stress [7]. In our population, 1% presents anxiety on returning to work.

If the individual has been an asymptomatic carrier, resumption of work is indicated after at least 10 days off work from the time of testing, or after confirming two negative PCRtests with a 24-hour interval for an early resumption [6].

Is there an indication to prescribe a serological test? In this study, the serological tests are only requested when the PCR is negative in a person with symptoms compatible with COVID-19 (at day 7 from the onset of symptoms), and this is for potential diagnostic confirmation. It is not a decisive factor for returning to work. The occurrence of seroconversion does not necessarily imply a simultaneous decrease in contagiosity [5].

Measures of protection

According to the literature, the situations of transmission between healthcare workers and patients have been observed despite respect to procedures, especially in specific circumstances involving patients already diagnosed as positive for COVID-19 or whose diagnosis was established later. This occurred notably when the patient did not wear a

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mask and there was close proximity between the healthcare workers, such as during assistance with feeding or oral care, or simply due to prolonged or repeated contact, for instance, related to the deterioration of the patient's clinical condition [8]. This observation explains the occurrence of COVID-19 among healthcare workers despite respect with hygiene and safety guidelines in the workplace. Various studies have shown that healthcare workers have a higher risk of contracting COVID-19 compared to other workers. Based on data from the UK Biobank, the relative risk of healthcare workers developing severe COVID-19 was estimated at 7.43 [95% CI 5.52—10.00] [8].

Elements of the prevention approach

In the workplace, the prevention must respect to the 9 general principles of prevention, emphasizing collective protection measures such as hand washing, disinfection, and social distancing. The individual protective measures complement those of collective protection. In the hospital environment, all healthcare workers must wear masks and respect to standard and universal precautions [6] to break the epidemiological transmission chain.

The French Society of Occupational Medicine recommends the following for the management of a suspected or confirmed COVID patient:

- Promote the principle of source control by encouraging the use of a medical mask by the patient if they are capable of accepting and respecting to usage rules. However, the feasibility of this guideline may vary in practice for certain hospitalized patients depending on their health condition, cognitive abilities, or time of day.
- Impose the systematic use of a type II medical mask by healthcare workers during patient care, except in situations where there is a risk of transmission by aerosols.
- Require the systematic use of a FFP2 respiratory protection device by healthcare workers in situations at risk of SARS-CoV-2 transmission through aerosols during patient care, based on scientific rationale (very probabe, probable, possible).
- In high-risk situations involving an unmasked patient, require eye protection (goggles or visor).

The organizational measures (sufficient staff, training in the use of personal protective equipment [PPE], limiting the number of exposed individuals) and technical measures (ventilation of premises) remain priorities.

Conclusion

The impacts of the COVID-19 pandemic on the work world have been particularly significant. The COVID-19 has led to a reorganization of working life and a significant increase in work stoppages. The occupational health services, with their medical and technical roles, are called upon to assess the ability to return to work and analyze the circumstances of occurrence, which will help optimize the use of appropriate prevention measures.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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*Corresponding Author: **Leila Belaroussi**