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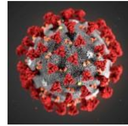

EUROMEDITERRANEAN BIOMEDICAL JOURNAL
2020,15 (40) 166–170
(FORMERLY: CAPSULA EBURNEA)

Commentary

IMPACT OF SARS COV-2 ON WORKING ACTIVITY

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ARTICLE INFO

Article history:
Received 30 July 2020
Revised 28 August 2020
Accepted 29 September 2020

Keywords:
COVID-19, SARS-CoV-2, organizational measures, environmental measures, infection, occupational medicine, PPE

ABSTRACT

In December 2019, an atypical pneumonia (subsequently named "disease caused by coronavirus 2019" - COVID-19) was discovered in Wuhan, China. Italy was the first country within the Euro-Mediterranean area to dramatically experience the pandemic and has progressively implemented stricter rules including social distancing, community and communication strategies, escalating in a lockdown on the 8th of March, 2020. In the phase of progressive resuming and restarting of work activities subsequent additions were implemented which allowed the use of the "agile or smart working" mode as much as possible, in order to minimize direct contact between employees of the same companies. It is crucial to apply these protocols in a homogeneous way in order to avoid a further increase a possible new halt of work activities, also in relation to the probable increase of infections during autumn and winter.

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Commentary

In December 2019, an atypical pneumonia (Coronavirus 2019 disease or COVID-19), caused by the Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) was discovered in Wuhan, China [1-3]. One of the first subject infected was proven to be a frequent customer of a Seafood *Wholesale* Market in Wuhan [4].
As a result, a new type of coronavirus has been isolated from epithelial respiratory human cells which belongs to the Sabevirus subgenus of the Coronavirus subfamily [5].
Similarly to other two precedently isolated coronaviruses such ad Middle East respiratory syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) SARS-CoV-2 could cause human infection[6-7].
SARS-CoV-2 causes an infection which can present itself as completely asymptomatic or with minimal flu-like symptoms, especially among younger people, or paucsymptomatic with most common symptoms that are fever, cough and asthenia [8].
Nevertheless, in the most severe cases that principally occurred among the elderly and subject with comorbidities, there can be respiratory difficulties or shortness of breath, thoracic pressure, chest pain, loss of speech and loss of movement ability [9, 10, 11]. Also people who have extreme or demanding tasks or who play competitive sports [11], or those who have particularly stressful jobs with frequent night shifts, where it has been clearly proven that irregularities of the normal circadian rhythm can be the start of a decrease, even if transitory, of the immune system, are actually considered at risk for severe COVID-19 disease [12-13].
In addition, other less frequent symptoms associated to the infection with SARS-CoV-2 can be the loss of olfaction, taste, and, rarely, otovestibular symptoms among which is partial hearing loss [14].
In such cases, it appears necessary to make a differential diagnosis with subjective factors which can lead to the onset of otovestibular symptoms such as old age, occupational and extra-occupational exposure to noise, hereditary factors, transitory psychophysical stress and chronic use of alcohol and some drugs [15-17].

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DOI: 10.3269/1970-5492.2020.15.40
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Furthermore, in the most severe cases, COVID-19 can cause interstitial pulmonitis that can rapidly evolve into acute respiratory distress syndrome. SARS-CoV-2 may predispose patients to thrombotic disease, both in the venous and arterial circulations, due to excessive inflammation, platelet activation, endothelial dysfunction, and stasis [18]; this situation can be the cause of the patient's death [19].

Italy was the first country within the Euro-Mediterranean area to dramatically experience the pandemic and has progressively implemented stricter rules than the ones recommended by the World Health Organization [20] including social distancing, community and communication [21] strategies, as non-pharmaceutical interventions to mitigate the contagion [22], escalating in a lockdown on the 8th of March, 2020 [23-24].

The working activities necessary to ensure essential services, for instance food and pharmaceutical supplies, as well as energy and hospital services are among those not temporarily suspended by the Legislative Decree of 8th of March 2020 [23] and continued their activity by implementing the containment measures and standards according to the Legislative Decree n.6 of February 23rd, 2020 [25].

In the phase of progressive resuming and restarting of work activities, the "shared protocol for the regulation of measures to combat and contain the spread of the COVID-19 virus in the workplace" has been adopted and signed on the 14th of March 2020. Subsequent additions [26] were implemented which allowed the use of the "agile or smart working" mode as much as possible in order to minimize direct contact between employees of the same company.

General organizational measures regarding the containment and management of the epidemiological emergency of COVID-19 have been imposed by the competent authorities for an adequate and proportionate management of the evolution of the epidemiological situation. These measures have been extremely important in many aspects, including as a contribution to primary prevention and thus with the goal of eliminating the risk.

The progressive reactivation of the production cycle has not been separated from an analysis of the organization of work aimed at containing the risk through the remodeling of spaces, workstations, working hours and shifts. In particular, the work areas have been redesigned with an aim to enable social distancing of at least 1.5 meters between the staff members, as compatible with the nature of the production processes.

Even the adjustment of working hours, in order to reduce social contact within the companies as well, has provided for innovative organizational solutions which concern both the modification of the timetable and the production process. In the current pandemic emergency from SARS-CoV-2, each individual is called to apply the recommended personal prevention norms in pursuance of limiting the spread of the infection such as frequent hand washing with sanitizers or the use of personal protective equipment (PPE).

Hence the above mentioned must be advertised with posters or brochures posted in the workplace.

Such measures have been classified as follows:

1. Organizational and environmental measures
2. Personal preventive and protective measures
3. Specific measures to protect "fragile" workers, and reintegration of workers after SARS-CoV-2 infection.

1. In line with the risk assessment and management processes governed by the Legislative Decree 81/08 and as amended [27], general and specific measures have also been adopted commensurate with the risk of exposure to SARS-CoV-2 in the workplace, favoring primary prevention Organizational Measures [28]:

- Blocking all trips to and from all areas defined as "red", where cases of COVID-19 infections have already been ascertained.
- Possible 14-day home quarantine for those who live, work or return from these areas.
- Selective control and measurement of body temperature of all suppliers and external collaborators.
- Reduction of the number of operators within each confined environment.
- Prioritize, where possible, work from home (smart working).
- Composing, if possible, two or more closed and independent working groups, to be alternated every 14 days to work in the company or in smart working.
- Predisposition and maximum adherence to PPE dressing and undressing protocols.

2. Protective devices must be used whenever there is potentially close contact with a suspect case, especially when the potentially infected person does not wear a surgical mask that could reduce the spread of viruses in the environment. PPE as a mask, surgical or FFP2, and gloves, as regulated by the DL n. 9 (art. 34) [29] in combination with the DL n.18 (art 16 c. 1) [30] are provided for daily use to all workers who share common areas.

The principal personal measures are:

- Frequent hand washing or their sanitation
- Use of disposable nitrile gloves by workers who have to interact with shelf materials/products, permanently exposed to customers.
- Provide filtering face masks of type FFP2 or FFP3 only to workers involved in front-office activities after having been informed on their use.
- Use of surgical masks in the presence of other people.

3. During the resumption of work, particular attention was paid to subjects considered "fragile", that is, those subjects who, based on epidemiological data, clearly show a greater susceptibility to develop more serious clinical cases if affected by COVID-19.

INAIL considered these subjects all those included in the highest age groups of the population (>55 years of age), or suffering from some types of chronic degenerative diseases (e.g. cardiovascular, respiratory and dysmetabolic pathologies) which, in the case of comorbidity with SARS-CoV-2 infection, can adversely affect the severity and outcome of the disease. For these subjects, a procedure was developed according to which fragile subjects did not have to go to work until the end of the emergency, which was declared in Italy to be on the 31st of July 2020 [31].

Furthermore, the progressive reintegration of workers after SARS-CoV-2 infection was also essential in this phase.

This implied the presentation beforehand of the certification of the negative swab test according to the procedures provided for and issued by the competent territorial prevention department.

It entailed the "medical visit prior to returning to work, following a lasting absence above 60 days, for health reasons" with the purpose of verifying the suitability for the job (Legislative Decree 81/08 and subsequent amendments, art. 41 c. 2 lett. E-ter), regardless of the duration of the absence due to a disease, by the company's responsible doctor who could certify his suitability for returning to work [27].

Experiencing or witnessing the suffering related to COVID-19 may result in high prevalence of Post-Traumatic Stress Disorder (PTSD), a mental disorder leading to serious distress and disability among survivors, family members, people who provide first aid and care (medical and public health professionals, police officers, etc.), and even among the general public. While control of the epidemic and care of patients with COVID-19 are still the dominant task of the whole world, this commentary calls for attention to early intervention and prevention of PTSD among affected populations [32-33].

Finally, for some categories such as healthcare workers and medical students, police officers, fire workers and other workers of public utility, educational interventions and influenza vaccination are strongly recommended [34-37]. Specifically, three Italian Region (Lazio, Calabria and Sicily) introduced the mandatory influenza vaccination for health care workers, that are actually considered at high risk for contracting and spreading influenza viruses that could contribute to the health impact of SARS-CoV-2 during next cold season [38-40]. Of increasing interest, dedicated public health protocols should be developed to protect healthcare workers in charge of fragile or special subpopulations, such as cancer patients or migrants [41-44].

These preventive measures, necessary for the containment of the pandemic, in countries where they have not been implemented in a prompt and careful manner for different scientific/political indications, for difficult socio/economic conditions and for environmental conditions (such as in Brazil, USA, India, etc), have allowed a dramatic expansion of the infection, which is increasingly difficult to contain.

While waiting for the results of ongoing clinical studies on several potential COVID-19 treatments, or the efficacy of a possible vaccine [45-46], epidemiological preliminary testing suggests that the exposed populations are still very far from achieving herd immunity [47].

For these reasons, it is crucial to apply these protocols in a homogeneous way in order to avoid a further increase in infections and a possible new halt of work activities, also in view of a new probable increase in infections during cold season.

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