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Alternative Causes Must be Ruled Out before Headache in Health Care Workers can be attributed to Personal Protective Equipment

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LETTER TO THE EDITOR

We read with interest the article by Chaudhary *et al*., on a cross-sectional study of 329 healthcare workers (HCWs) who completed a self-administered questionnaire between 4/2020 and 10/2020 regarding the tolerability of wearing personal protective equipment (PPE) including masks (N93/FFP2/FFP3), gown, and goggles with/without face shield, to protect against SARS-CoV-2 infection during work [Chaudhary, S. K. *et al*., 2023]. More than half of the patients reported headaches, 72% suffocation, 65% nasal pain, 54% earache, 20% shortness of breath, and 10% leg pain [Chaudhary, S. K. *et al*., 2023]. It was concluded that PPE use >4h is associated with headaches and that only brief use of PPE prevents headache and other complaints [Chaudhary, S. K. *et al*., 2023]. The study is excellent but has limitations that should be discussed.

A limitation of the study is that different causes of headache were not adequately ruled out. Headaches in HCWs wearing PPE can be not only due to PPE, but can also have many other causes. In general, headaches can be primary (tension-type, migraine, cluster, hypnic) and secondary. We should know how many of the 17% of patients with headache prior to COVUD-19 had primary headaches and how many had secondary headaches or both. In how many patients with previous headaches did PPE worsen their symptoms after starting to wear PPE. Differential causes of secondary headache to consider are stress, dehydration, lack of sleep, depression, exposure to noise, coffee/tea withdrawal, tight hair style, hypertension, hormonal imbalances, hypoxia, SARS-CoV-2 infection, drug overuse, hypoglycaemia, or anemia. An argument for stress is that in 18% and 19% of the patients the headache disappeared at rest asleep respectively. Does the questionnaire contain questions about stress? If yes, did stress intensity correlate with headaches?

A second limitation is the design of the study. Questionnaires have the disadvantage that the correctness of the answers cannot be checked on site and there is no guarantee that the addressee will fill out the questionnaire himself. Another limitation is that the patients did not undergo neurological examination or instrumental evaluation of their headaches. Another disadvantage is that the headaches were classified by the patient but not a by the neurologist, which could lead to incorrect classifications.

A third limitation is that depression was not considered to be the cause of the reported ailments. HCWs have been under particular stress during the pandemic not only due to the difficult working conditions, but also due to increased sick leave, increased domestic stress, uncertainty about the course and duration of the pandemic, frequently changing rules, and the constant fear of becoming infected.

A fourth limitation is that it did not report how many of the HCWs tested positive for SARS-CoV-2 by PCR despite the PPE, and whether SARS-CoV-2 infection could be responsible for the headaches and eventually the other symptoms.

There is no definition of a mild, moderate, and severe headache.

Overall, the interesting study has limitations that put the results and their interpretation into perspective. Clarifying these limitations would strengthen the conclusions and could improve the study. Alternative causes must be ruled out before headaches in health care workers can be attributed to PPE.

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