

SPECIAL ISSUE ARTICLE

Itch in the era of COVID-19 pandemic: An unfolding scenario

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Abstract

Coronavirus disease 2019 (COVID-19) is an infectious disease, caused by severe acute respiratory syndrome (SARS)-CoV-2, that broke out in December 2019. In just 4 months it has spread to almost every country in the world and up to April 18, 2020, the virus has infected more than two million people. Itch is the most common symptom in dermatology and a frequent one of systemic diseases. The association of itch and viral diseases has been widely documented; however, the actual prevalence of itch in the patients suffering from new the SARS-CoV-2 infection is still unknown. In this paper, we present a review of the available literature on the topic of itch in the affected population. Moreover, we have also analyzed different aspects of itch associated with COVID-19 pandemic, not directly related to the viral infection. Those included use of chemicals, hand sanitizers, common use of personal protective equipment and psychosocial stress.

KEYWORDS

pruritus, COVID-19

1 | INTRODUCTION

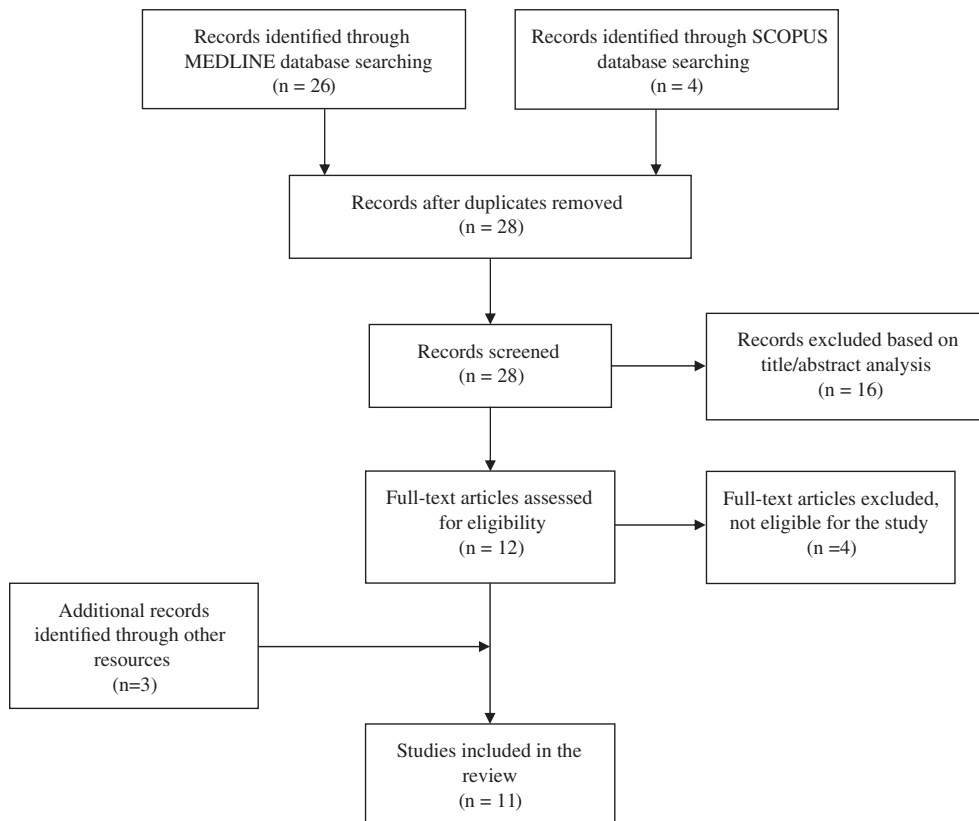
Coronavirus disease 2019 (COVID-19) broke out in the Hubei Province of China in December 2019.¹ After 4 months the pandemic spread around the world and was reported in 213 countries, areas or territories with more than two millions of confirmed cases and 135.163 deaths (WHO, update: 17th of April 2020) (European Centre for Disease Prevention and Control (ECDC).² The causative virus was identified on January 7, 2020 and was named as SARS-CoV-2 ("WHO | Novel Coronavirus – China").³

Itch, described as a cutaneous sensation leading to scratching, is a common symptom both in dermatologic and systemic diseases.⁴ It occurs also in general population; it is especially common in elderly population.⁵ It is well-known that chronic itch may cause serious psychosocial consequences.⁶

The current study was undertaken to review available literature data on itch related to COVID-19 pandemic.

2 | METHODOLOGY

The literature search was conducted on the 13th of April 2020 following the PRISMA guidelines.⁷ Two databases: PubMed and Scopus were searched, using the following combination of key words: "COVID and Itch", "COVID and Pruritus", "COVID and Skin" and "COVID and Cutaneous." Moreover, an additional search through the reference lists of eligible papers and consultation of health organization websites was performed in order to find newly published data related to the topic. As there was no article dealing preferably with COVID-19 and itch, we screened also those on skin manifestations related to COVID-19. The selection process finally resulted in 11 papers dealing directly or indirectly with itching. The details of the selection process are presented in Figure 1.

FIGURE 1 Scheme of selection of studies

2.1 | Itch in dermatoses suggested to be associated with COVID-19

The data on the cutaneous involvement in COVID-19 is limited in the available literature, only a few studies focused on cutaneous manifestations during the SARS-CoV-2 infection.⁸⁻¹¹ While prior studies described mostly other aspects of the disease,^{1,12} a recent paper from Italy¹¹ demonstrated that there might be a skin involvement in COVID-19, similarly to cutaneous signs and symptoms occurring during common viral infections. Most importantly, skin manifestations did not correlate with disease severity.¹¹ According to the newly presented data, it seems that 0.2% to 20.4% of patients with COVID-19 may have a clinical manifestation.^{1,11} Although only three studies mentioned itch occurrence in infected individuals,^{8,10,11} based on the current dermatological knowledge, one may predict that some of the cutaneous manifestations are itchy as well. Till now the following dermatoses have been reported to be potentially associated with SARS-CoV-2 infection: erythematous rash, Dengue-like rash, urticarial, varioliform eruptions, and livedo reticularis-like eruptions.^{1,8-11}

The erythematous rash was described as the main cutaneous manifestation of the disease (44.5%) in the Italian study,¹¹ and the only cutaneous presentation mentioned in the previous report from China with the prevalence of 0.2%.¹ The most commonly involved area was the trunk. Recalcati et al¹¹ among all cutaneous manifestations, including erythematous rash, urticaria, and varioliform eruptions, reported that itch was mild or absent, and lesions usually healed up in

a few days. Moreover, physicians from Spain confirmed that mild itch associates the erythematous rash related to COVID-19 in at least some patients (unpublished data, doctors from Madrid and Cordoba, personal communication). Joob et al⁹ hypothesized that COVID-19 infection might present with a petechial rash similar to that observed in Dengue fever. It is worth mentioning that up to one-fourth of Dengue patients suffered from itch.¹³ Jimenez-Cauhe et al⁸ reported additional 84-year old woman, who developed erythematopurpuric, millimetric, coalescing macules, located in flexural regions on the third day of hospitalization due to COVID-19. The rash was described as mildly pruriginous. Thrombocytopenia is present both in Dengue⁹ and in COVID-19,¹ which may affect the diagnostic process. Widespread urticaria was reported in 16.7% of COVID-19 patients.¹¹ Although the data about itch are missing, urticaria is a well-known dermatologic disease associated with intensive itch.¹⁴ Varioliform eruption (chickenpox-like vesicles) was present in 5.6% of the reported subjects.¹¹ Again there is a lack of data concerning the itch in those patients, however, some physicians dealing with COVID-19 patients report that the condition might be itchy one (unpublished data, doctors from Madrid and Cordoba, personal communication). Manalo et al¹⁰ recently described two cases of transient unilateral livedo reticularis in COVID-19-positive subjects. In the first case lesions cleared up within 19 hours, and in the second case, rash lasted only approximately 20 minutes. The lesions were nonpruritic and did not recur in the follow-up period. The authors speculated that low grade disseminated intravascular coagulation (DIC) might be the possible cause of livedo reticularis-like eruptions.

2.2 | Itch due to extensive use of chemicals

The enhanced preventive measures during the COVID-19 pandemic include proper hand hygiene. It is well-known that hand eczema is a common condition in health care workers,^{15,16} most probably due to frequent occupational hand washing, prolonged use of gloves and hand disinfectants.^{17,18} During COVID-19 pandemic Lan et al¹⁹ performed a survey among 526 individuals, consisting of physicians and nurses who worked in the isolation wards and fever clinics in Hubei, China. Among all skin damages reported, 74% reported hand-skin damage. Subjects that declared more frequent hand hygiene (handwashing over 10 times per day) had an increased risk of hand-skin damage (OR 2.17, $P = .01$). The majority of subjects (52.5%) reported itching, however, correlation with handwashing was not revealed. These results were in accordance with the previous study by Lin et al²⁰ Nearly three fourth (74.5%) of their studied population of health care workers reported the adverse skin reactions, with hands as the most commonly affected area (84.6%). Although itch per se was not taken into analysis, skin dryness, which is a leading cause of itch in inconspicuous skin,²¹ was reported in 68.6% of subjects.

During a pandemic, not only health care workers are required to wash their hands more frequently with water and soap, but the general population as well. These may lead to potential skin barrier damage, leading to skin dryness, and consecutively itch.^{21,22} Hamming et al²³ described the presence of ACE2, the functional receptor for SARS coronavirus, in the basal cell layer of the epidermis extending to the basal cell layer of hair follicles. Smooth muscle cells surrounding the sebaceous glands and the cells of the eccrine glands were also positive for ACE2. Therefore, one may speculate, that above-mentioned skin damage creates an easier route of entry for the virus. The European Task Force on Atopic Dermatitis (ETFAD)²⁴ stated to carefully observe hygienic procedures during the handwashing. They also recommended nonirritant soap substitutes usage, with moisturizers, applied afterwards. These may help to restore the disturbed epidermal barrier function and alleviate itch.

2.3 | Itch due to use of personal protective equipment

Personal protective equipment (PPE) has been used every day by health care personnel to protect themselves, patients, and others when providing care for COVID-19 confirmed and/or suspected patients.¹⁹ PPE consists of various elements, such as surgical gowns, safety suits, helmets, medical goggles, respirators, gloves, and much more. The perspiration problem and overheating were suggested to exacerbate of preexisting dermatoses, like acne, rosacea, seborrhea, seborrheic dermatitis, or psoriasis.²⁵ As itch is the common manifestation of at least some of those diseases, its intensity might be increased. Itch could also appear de novo due to wearing of PPE. Itching induced by PPE was reported in 52.5% of health care workers, but the location of the sensations not defined by the authors.¹⁹

2.4 | Itch due to psychosocial stress

It was clearly documented that, during the COVID-19 pandemic, fear of the unknown raised anxiety level in the general population,²⁶⁻²⁸ as well as in health care workers.²⁹ It is known that stress, anxiety and fear may induce and/or exacerbate itch.⁶ Although there are no studies available directly linking itch and stress in the time of the viral pandemic, one cannot omit the possible connection. Moreover, most probably we can predict, that due to psychosocial stress, the intensity of itch might be enhanced in the most vulnerable populations, for example, patients with preexisting itchy skin disorders, such as atopic dermatitis,³⁰ urticaria³¹ or psoriasis.³² Stress-related to the disease itself and additionally influenced by COVID-19 pandemic may markedly affect itch status in those patients.

3 | CONCLUSIONS

In conclusion, taking into account literature data on itch in the COVID-19 pandemic era, there are no specific studies dealing with itch till now. Some studies mentioned itch, mainly describing cutaneous manifestations in patients with SARS-CoV-2 infection. Even in those papers, the data on itch is incomplete. The unfolding scenario of COVID-19 pandemic will definitely result in more data available in the nearest future. Reports dealing with itch related to different aspects of pandemic (eg, dermatoses associated with COVID-19 infection, exacerbation of preexisting itchy disorders, adverse reactions to PPE, psychological stress-induced itch) are highly appreciated and expected to confirm some hypotheses rose in this review.

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