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At-risk circumstances for COVID-19 increase the risk of pruritus: cross-sectional and longitudinal analyses

Editor

Various studies have revealed that psychological stress enhances pruritus.[1,2] The COVID-19 pandemic have increased psychological stress. People may feel additional psychological stress in at-risk circumstances for the spread of COVID-19 infection. However, it is unknown whether at-risk circumstances for COVID-19, such as confirmed infection in acquaintances, are associated with the risk of pruritus. Thus, we investigated the association between at-risk circumstances and pruritus in the general population via cross-sectional and longitudinal analyses.

We used the data of the Quality of Life in COVID-19 Era (QoLCoVE) study (2020-), a web-based, nationwide cohort to investigate quality of life conditions of general populations in the COVID-19 era, based on representative samples for which we set quotas with regard to age, sex and residential area in Japan. The at-risk circumstances for COVID-19 were defined as confirmed COVID-19 in acquaintances (family members, close friends or colleagues) or acquaintances of acquaintances. Primary outcomes were the presence of severe pruritus at baseline in the cross-sectional analysis and the development of severe pruritus during follow-up in the longitudinal analysis. Pruritus was evaluated in March 2020 (baseline) and May 2020 (follow-up) using a five-point Likert scale, representing feeling of 'not at all', 'somewhat', 'moderately', 'very much' or 'extremely' bothered by pruritus during the last 4 weeks. 'Not at all' to 'moderately' bothered was classified as no/mild pruritus and 'very much' or 'extremely' bothered as severe pruritus. Development of pruritus was defined as presenting with severe pruritus during follow-up in participants who had no/mild pruritus at baseline. Multivariable modified Poisson regression analyses were performed to investigate the relationship between the at-risk circumstances and the outcomes with adjustments for possible

Table 1 The results of the multivariate analysis in the cross-sectional study at baseline (N = 3330) and in the longitudinal study based on the participants who had no/mild pruritus during follow-up (N = 2549) are shown in the left and right columns respectively

Variables	Cross-sectional analysis (Presence of pruritus)		Longitudinal analysis (Development of pruritus)	
	Risk ratio (95% CI)	*P* value	Risk ratio (95% CI)	*P* value
At-risk circumstances for COVID-19 (vs. no)	1.45 (1.14–1.86)	0.003	1.97 (1.48–2.64)	<0.001
Age, per 1-year increase	1.01 (1–1.02)	0.108	0.99 (0.98–1.01)	0.295
Gender, male (vs. female)	1.1 (0.87–1.39)	0.422	1.18 (0.86–1.63)	0.301
Mental component summary, per one-point increase	0.96 (0.96–0.97)	<0.0001	0.96 (0.95–0.98)	<0.001
Moderate activities (vs. no)	0.91 (0.68–1.22)	0.525	1.25 (0.88–1.78)	0.209
Current smoke (vs. no)	0.93 (0.81–1.07)	0.319	1.01 (0.83–1.23)	0.935
Drinking habit (vs. no)	0.88 (0.7–1.11)	0.278	1.11 (0.81–1.52)	0.516
Atopic dermatitis (vs. no)	4.13 (3.13–5.45)	<0.001	2.82 (1.78–4.46)	<0.001
Other skin diseases (vs. no)	2.15 (1.52–3.04)	<0.001	1.71 (0.93–3.15)	0.083
Number of Comorbidity				
0	(Reference)		(Reference)	
1	0.99 (0.75–1.29)	0.925	1.28 (0.892013–1.83)	0.177
2	1.21 (0.86–1.7)	0.273	1.25 (0.73–2.12)	0.418
3	0.97 (0.52–1.83)	0.935	1.14 (0.44–2.95)	0.783

Modified Poisson regression models with adjustments for the following potential confounders were used: age, sex, smoking habits, drinking habits, depressive symptoms, moderate activities based on the IPAQ score, atopic dermatitis, other skin diseases and the number of comorbidities (0, 1, 2 or ≥3 of the following: hypertension, diabetes mellitus, coronary artery disease, cerebrovascular disease, lung disease, chronic kidney disease and gastrointestinal disease).

confounders, including age, sex, smoking habits, drinking habits, depressive symptoms, moderate physical activity based on the IPAQ score, atopic dermatitis, other skin diseases and number of comorbidities (0, 1, 2 or ≥3 of the following: hypertension, diabetes mellitus, coronary artery disease, cerebrovascular disease, lung disease, chronic kidney disease and gastrointestinal disease).

We requested 4589 people, and 76.3% (3500) agreed to participate in QoLCoVE study. Of those, 3330 aged ≥20 years were enrolled in the analysis. The population had a mean age of 50.4 years and consisted of 1645 (49.4%) males, 281 (8.4%) people with severe pruritus and 74 (2.2%) people who reported at-risk circumstances for COVID-19. Multivariable analysis revealed that participants with at-risk circumstances at baseline were more likely to have severe pruritus than those without (adjusted risk ratio = 1.45, 95% CI 1.14–1.86) (Table 1). For the longitudinal analysis, 2549 who showed no/mild pruritus at baseline were included. Results showed that participants with at-risk circumstances were more likely to develop severe pruritus during the follow-up than those without (adjusted risk ratio = 1.97, 95% CI 1.48–2.64).

Here, we revealed both cross-sectional and longitudinal associations between at-risk circumstances for COVID-19 and pruritus after adjustment for possible confounders. There were much fewer COVID-19 patients during the study period than now. Thus, pruritus observed in the study is less likely to be a symptom of COVID-19, suggesting that the at-risk circumstances itself may affect the risk of having and developing pruritus. Results showed that atopic dermatitis is closely associated with pruritus, as is generally accepted. A previous study revealed that medical workers who encountered COVID-19 patients were psychologically stressed.[3] Furthermore, other studies suggested that personal protective equipment for COVID-19, such as gloves, may promote pruritus, supporting our results.[4,5]

Although there was a possibility of misclassification bias due to the nature of the self-administered questionnaire, in conclusion, results suggest that pruritus may be more prevalent than ever during the COVID-19 era. Dermatologists should be aware of such new types of psychogenic pruritus.

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Data availability statement
Data are not available due to ethical restrictions.

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Dermatological emergency unit, day-care hospital and consultations in time of COVID-19: the impact of teledermatology

To the Editor,

During the first COVID-19 pandemic wave, dermatologists were urged to postpone non-urgent and outpatient visits,[1] to limit COVID-19 spreading. Teledermatology (TD) integration, through live-and-interactive (LI) video consultation or store-and-forward (SF) expertise, was raised as a potential substitute to maintain continuity of care.[2,3] The aim of this study was to determine whether TD implementation during the pandemic could (or not) compensate for the outpatient activity predicted in the absence of COVID-19 pandemic. It was conducted in a dermatology department of a tertiary centre, providing SF TD since 2016, notably for skin emergencies. To avoid cancelling in-person visits, LI TD was implemented and set in March 2020. The monthly number of scheduled consultations, dermatological emergency unit (DEU) visits, LI TD consultations and SF TD requests were retrieved from January 2019 to December 2020.