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## **Skin cancer and COVID -19: was the diagnosis safeguarded by teledermatology? a study on 1229 cases**

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3 **Article Title: Skin cancer and COVID-19: was the diagnosis safeguarded by tele dermatology?**

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26

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34

35 **Abbreviations and acronyms:**

36 Skin cancer (SC)

37 Teledermatology (TD)

38 Long-term care facilities (LTCF)

39 Health care professionals (HCPs)

40 General physicians (GPs)

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42

43 During COVID-19 pandemic, dermatology practices are shifting to teledermatology (TD)<sup>1</sup>. The objective  
44 of our study is to assess the effect of the first vs second COVID-19 waves on skin cancer (SC) requests  
45 via TD.

46

47 The study was conducted in a dermatology department, characterized by a store-and-forward TD between  
48 health care professionals (HCPs) and dermatologists. All TD requests during the first (March and April  
49 2020) and second (October and November 2020) COVID-19 waves in France were retrieved and  
50 compared to the corresponding period in 2019. Collected data included the provenance and diagnoses of  
51 patients. The provenance was divided into: institutions [long-term care facilities (LTCF) and hospitals]  
52 and non-institutions (private physician clinics). Diagnoses of patients were divided into: SC,  
53 inflammatory dermatoses, infectious dermatoses, cutaneous drug adverse reactions, and “other”  
54 diagnoses. The proportions of these diagnoses during both COVID waves in 2020 were compared to the  
55 corresponding months in 2019. For SC diagnoses, institution and non-institutions requests during both  
56 waves were also compared to the same period in 2019.

57 ***First wave (March and April 2020 vs 2019):***

58 The total number of requests was 583 in 2019 vs. 629 in 2020. Skin diagnoses are represented in figure 1.  
59 In “other” diagnoses, 32.1% of these diagnoses (55/171) were COVID-19-related cutaneous lesions,  
60 mostly chilblains (70.9%). Regarding SC, the comparison of institution requests and non-institutions  
61 requests in 2020 vs 2019 are represented in figure 2.

62 ***Second wave (October and November 2020 vs 2019)*** (figure 1 and 2). :

63 The total number of requests was 547 in 2019 vs. 600 in 2020. In “other diagnoses”, 11.4% of these  
64 diagnoses (10/87) were COVID-19-related cutaneous lesions.

65

66 In total, during the first wave, there was significantly fewer concern in skin cancer and more concern in  
67 ‘other’ skin diagnoses, which included COVID-19-related cutaneous signs. Both institutions and non-  
68 institution requests for SC significantly decreased. During the 2<sup>nd</sup> wave, there was no significant  
69 difference in any type of skin diagnosis.

70 During the first pandemic wave, LTCF physicians seemed more concerned about COVID-19 than other  
71 health issues. This is because outbreaks of infection developed rapidly in LTCF<sup>2</sup> and elderly are more  
72 vulnerable to infections and at a higher mortality risk. Since confinement was essential for COVID-19  
73 control<sup>1</sup> and public health endorsed social distancing, less patients consulted their general physicians  
74 (GPs). Moreover, physicians canceled consultations to avoid virus transmission.

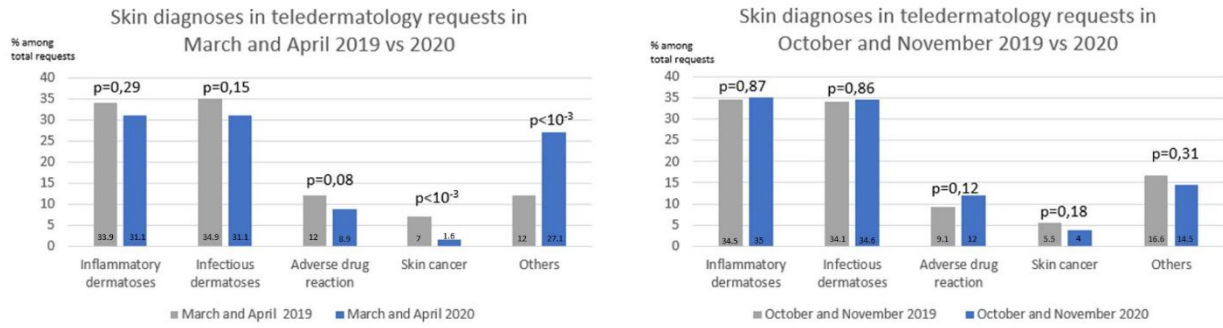
75 During the first wave, there was a decrease of overall in-person oncology referrals<sup>3</sup>. Unexpectedly, even  
76 though access to TD expertise was possible, there was also a decrease in SC requests. The delay in SC  
77 diagnosis was manifested by an increase in Breslow thickness in primary melanomas seen after the first  
78 COVID- 19 lockdown.<sup>4</sup>

79 Shortly after the first pandemic, all healthcare professionals were urged to shift their activity to  
80 telemedicine, which has become a cornerstone for continuity of care.<sup>5</sup> Consultations were less likely to be  
81 canceled. Moreover, a balance was made between medical attention to COVID patients and regular  
82 attention to other patients. Contrary to the persistence of a general decline in skin cancer diagnoses during  
83 the second wave<sup>6,7</sup>, SC diagnosis through TD showed no decrease compared to 2019.

84 Since TD has already shown efficacy in diagnosis and management of SC<sup>8</sup>, it is important for physicians  
85 to scale the use of TD in order to prevent unnecessary in-person visits and help schedule specific  
86 appointments for vulnerable patients. Prompting doctors to use TD for SC diagnosis and SC pathway  
87 organisation would prevent increased morbidity, mortality, and healthcare costs.

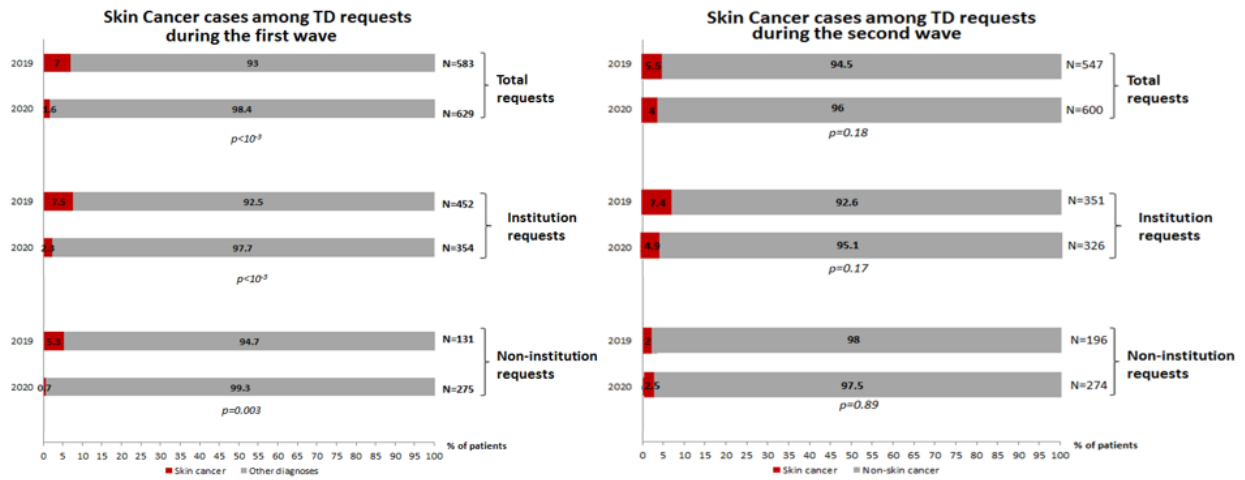
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89 **Figure 1:**



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91 **Figure 2:**



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