PATIENTS' PERCEPTIONS ON TELEDERMATOLOGY THROUGH VIDEO-CONSULTING DURING THE COVID-19 PANDEMIC: REPORT ON A BELGIAN CLINICAL COHORT

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Abstract

Objectives: In light of the Covid-19 pandemic, the Belgian government announced a quarantine period. Following the imposed guidelines, UZ Leuven responded swiftly by cancelling all non-urgent ambulant consultations for a period of three weeks. Later, this was prolonged to a period of three months. This setting necessitated the implementation of telemedicine. In this pilot study, we invited patients followed in our department for inflammatory skin diseases (psoriasis and atopic dermatitis) to substitute their cancelled appointment with a video-consult. Preparation of the consultation as well as the video-consultation itself was assessed by the patient through an online questionnaire. **Methods:** A live-interactive teledermatology service was offered by email to patients in follow-up for inflammatory skin diseases who had an appointment scheduled that was cancelled because of the Covid-19-pandemic. Patients who accepted the invitation received instructions on how to prepare for the video-consultation. After the video-consultation they received a link to an anonymous online questionnaire. **Results:** In total, 100 patients received an invitation by email to replace the cancelled appointment by a video-consultation. Forty-two patients agreed to participate in video-consultation. The questionnaire was completed by 30 patients. Overall, patients did not report technical difficulties before or during the video-consultation. Satisfaction with the video-consult was high. Most of the participants were inclined to accept another invitation in the future. **Conclusion:** The Covid-19 pandemic prompted rapid implementation of video-consultation in the UZ Leuven dermatology department. It was assessed as an acceptable replacement given the circumstances. Most patients felt the visual support was an added value and were open to further video-consulting in the future.

Keywords: inflammatory skin disease; teledermatology; videoconference; Covid-19
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Introduction

The first human infections with SARS-CoV2 were reported at the end of December 2019 in Wuhan, Hubei province in China. The SARS-CoV2 (commonly referred to as Coronavirus) spread globally in the following months with a major impact on healthcare systems and society. The epidemic was declared a pandemic by the WHO on the 12th of March 2020. The Belgian government implemented a 'lockdown' on the 14th of March 2020, banning all non-essential travel and social contact for an initial period of three weeks.

The dermatology department of the University Hospital of Leuven (UZ Leuven) was instructed to cancel all non-urgent consultations for this period. Later, this policy was prolonged until the 11th of May.

Videoconferenced teledermatology (TD) was one of the earliest telemedicine services to be implemented, with the first reports of its use published as early as 1997.[1] Satisfaction rates from patients participating in TD have been reported to be high.[2,3] Even though in some countries TD is integrated in the healthcare system, it is currently not common practisc in Belgium: we found only one published Belgian pilot study on this topic.[4-7] To the best of our knowledge, only one government-sponsored pilot project involving teledermatology is currently in its starting phase in Belgium. However, the setting of the Covid-19 pandemic has highlighted an acute need for TD.

Based on the supporting technology, TD can be divided into two subgroups: store-and-forward teledermatology (SF) and live interaction teledermatology.[8]

Store-and-forward teledermatology allows sharing of clinical information that can be reviewed by providers at a later time. This may be by email, telephone, app or website. Teledermoscopy includes dermoscopic images in the teleconsultation and is considered a subtype of store-and-forward teledermatology.[9]

In the UZ Leuven pilot study we used live interactive

teledermatology (LI). This form of TD refers to the live streaming of video footage and audio between the healthcare provider and patient. Obviously, it has several advantages over SF since it comes closest to the standard consultation both patient and caregiver are familiar with. The benefit of the consultation taking place in the home setting of the patient comes with the potential obstacle that the patient is responsible for all technological support.

In this pilot study, we evaluate the number of patients accepting an invitation for a live interaction session. Furthermore, we present the feedback of our cohort obtained through an anonymous online questionnaire.

Methods

Context

The setting for this pilot study was the UZ Leuven dermatology department. Patients deemed eligible for video-consulting were patients in follow-up for psoriasis or atopic dermatitis in the period of March – April 2020. The population with an established diagnosis of psoriasis and atopic dermatitis under chronic treatment was considered to be ideal for this pilot project. It can be argued that the quality of streaming video images and lighting at home is not suited for the diagnosis of skin diseases, which is usually not required in the follow-up of psoriasis or atopic dermatitis. These patients were contacted by email to assess their interest to have LI. Patients who responded positively to this email received instructions on how to log on to the platform (Mynexuzhealth) and participate in the video consultation. Approval of the ethics committee to send out a questionnaire was obtained. The questionnaire was developed by the authors and contained eight questions. Two questions informed about patient specifics (age, sex). Three questions informed about technical issues (Likert scale on preparing for the consultation, visual and auditory support). Three questions investigated the appreciation and willingness to repeat video-consulting in the future (Likert scale). Using SurveyMonkey, an online survey tool, a link to the questionnaire was sent to all patients who agreed to have LI. LI-consults were performed by two dermatologists (TH and FC).

Live interaction teledermatology

Access to a webcam, Google Chrome and Mynexuzhealth were mandatory to participate in LI consultation. Mynexuzhealth, a joint venture between UZ Leuven and Cegeka, is a secured online healthcare application which is linked to the hospital's electronic patient file. The video functionality of the platform was in its final stages of development: clinical implementation was accelerated because of the COVID-pandemic. Neither dermatologists nor patients had any experience with this functionality of the Mynexuzhealth-platform: written instructions were provided. Patients received an email with instructions to log in fifteen minutes before the scheduled appointment time. Remuneration was covered by the health insurance since the Belgian government urgently created reimbursement for teleconsultation during the Covid-19-pandemic.

Study design

This prospective descriptive study investigates the response rate among eligible candidates with inflammatory skin diseases for LI-consults. It provides insight into the ease of use of LI-consults in a real-life Belgian dermatology population. Furthermore, the satisfaction rate of patients and their willingness to have video-consults in the future is reported.

Number of patients

One hundred potential candidates for video-consulting received an email explaining the modalities of this online consult. (Figure 1) eMails were sent to patients being followed-up for psoriasis and atopic dermatitis. Forty-two patients accepted the invitation for LI; they are referred to as responders. Thirty responders filled out the online questionnaire; they are referred to as participants.

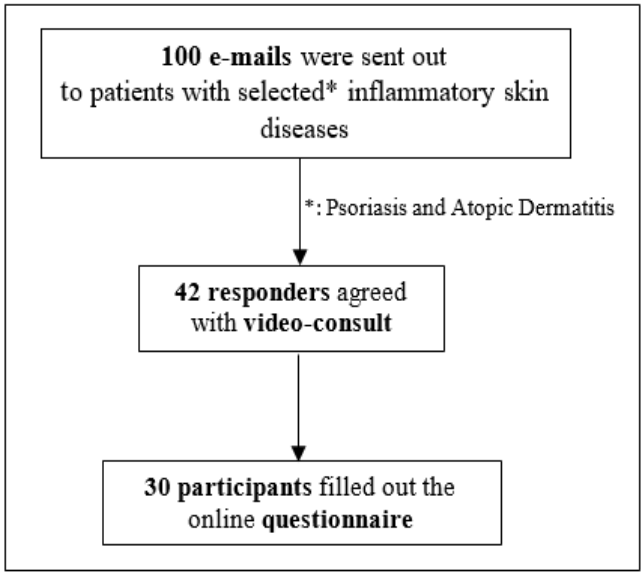

Figure 1. Flowchart of the study design.

Results

Responders

Sixty-six male and 34 female patients with a mean age of 48 years received an email. Forty-two agreed to replace the consultation by a video-consult. The participation rate of female and male patients was in the same range: 38.2 and 43.9%, respectively. The mean age of the responders was 49.4 years (median age: 53 years). (Table 1)

The response rate during the first two weeks of quarantine was low (5/30 (16.7%)). Interestingly, once the quarantine was well established, the response rate increased to 52.8% (37/70). Details on the group of patients who received an email invitation for video-consultation (cohort), the group of

patients who responded positively and had the video-consultation (responders) and those who filled in the online questionnaire (participants) are presented in Table 1: 66% of eligible patients were male. The response rates between males and females were comparable. Male participants were more inclined to fill out the online questionnaire.

	Cohort	Responders	Participants
Number	100	42	30
Male	66 (66%)	29 (69%)	24 (80%)
Mean age (range) yr	48 (7-79)	49.4 (7-71)	55 (15-85)

Table 1. Patient details

Technical difficulties

In 7% (n=3), the connection failed: due to technical issues, and no visual contact with the patient was possible. In these cases, the consultation was performed over the phone, and patients were asked to send clinical pictures by email when necessary.

Survey

The anonymous online questionnaire was successfully completed by 71.4% (n= 30) of responders. (Figure 2) Age was questioned through birth cohorts of ten years: 60% of responders were born between 1951 and 1970 and 80% of the participants of the survey were male.

Twenty participants (67%) indicated that the preparations and instructions for the video-consult were not difficult at all. Of the remainder, only one found it extremely difficult, with the rest considering it 'a little' difficult. Most participants (>80%) reported high satisfaction with the audio-visual support.

Willingness to have LI in the future

The video aspect was considered to add value to the consultation, with 64% rating the value as 'very high' and 25% as 'high'. Only 2% felt that it added no value at all. Most of the participants indicated that they would be prepared to have a video-consultation in the future (52% definitely; 28% probably). Only one participant was not willing to repeat LI in the future. Furthermore, over half of the participants were willing to replace future consultations with video-consulting.

Discussion

The Covid-19 pandemic has forced the Belgian healthcare system to implement a long-overlooked consultation strategy: telemedicine. Telephone consultation is probably the most accessible application. However, dermatology is an eminently visual discipline. Therefore, the use of visual support through LI can be an added value to healthcare provision. This pilot project investigates a cohort in follow-up for selected inflammatory skin diseases (psoriasis and atopic dermatitis) in the dermatology department of UZLeuven. We report the response rate to the possibility of video-consulting and the satisfaction rate among participants.

It seems that in this population, age did not influence the response-rate as the median age of the cohort was 53 years and the median ages of the responders and non-responders were similar. While males and females were equally interested in participating in a video-consultation, more males participated in the survey.

Our findings are in line with the publications who show high satisfaction rates among patients participating in video consultation.[10-13] Moreover, in general, a low rate of technical difficulties is reported by patients, but Fluhr et al. reported overall lower satisfaction scores with regard to the technical modalities of the video consultation.[14] Overall, those findings seem to be independent of age or sex.

An interesting observation is the low response rate of 16.7% during the first two weeks, compared to 52.8% in the weeks after. We believe this reflects a shift in mindset elicited by the realisation, that the Covid-19 pandemic would lead to long-term isolation. Overall, patients felt uncomfort-

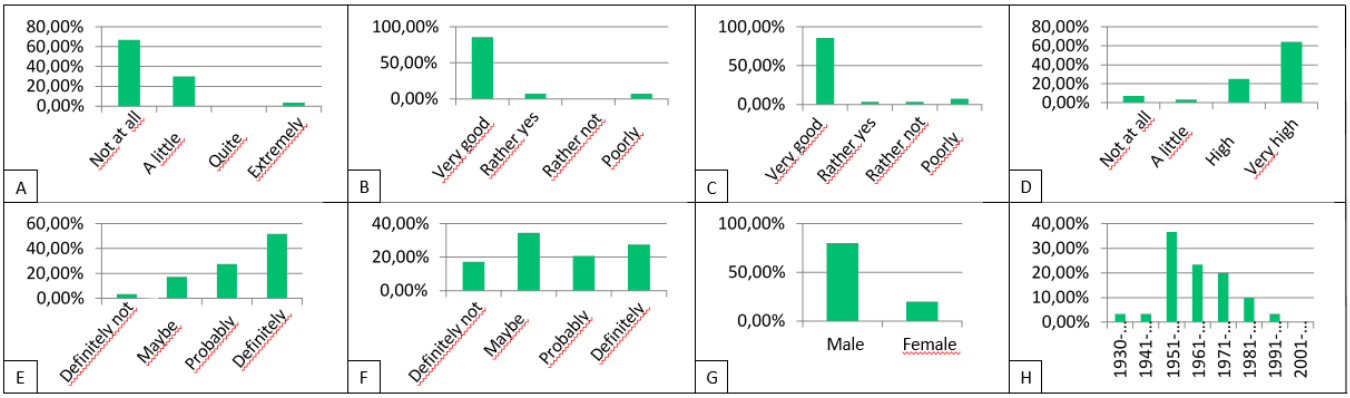

Figure 2. Overview of the online questionnaire: A. Was it difficult to prepare for the consultation? B. Could you clearly see your physician? C. Could you clearly understand your physician? D. Was the visual support an added value for the consultation? E. Would you reconsider a video-consultation in the future? F. Do you believe video-consulting can replace a standard consultation (eg. 1/year)?

able leaving their homes and were happy to receive medical care through a digital channel. Potentially, the time and cost savings associated with telemedicine will stimulate patients to remain enthusiastic also after the Covid-19 pandemic.

We conclude that through the Covid-19 pandemic patients became more open to TD. This pilot study endorses that TD is perceived as a valuable and satisfactory consultation tool by patients across gender and age. Even though the Belgian patient population at large is unfamiliar with the concept of TD, little or no technical difficulties were reported. We believe live interaction TD can be introduced for future follow-up of patients with established inflammatory skin diseases under chronic treatment. These findings are encouraging to implement TD in the Belgian healthcare system.

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