

# TELEMEDICINE AND E-HEALTH IN THE MANAGEMENT OF ATOPIC DERMATITIS DURING COVID-19 PANDEMIC

ANA ION\*, LILIANA GABRIELA POPA\*, \*\*, CRISTIANA STROE\*, CRISTINA BEIU\*, \*\*, MARA MĂDĂLINA MIHAI\*, \*\*

## Summary

*Telemedicine has been defined as the exchange of medical information from one site to another through electronic means of communication to improve patient's health. E- health refers to the use of digital technologies to enable communication among health care practitioners and also between health professionals and their patients. Teledermatology is successfully used in the management of chronic inflammatory skin disorders like atopic dermatitis, psoriasis, but also to monitor acne or various types of eczema. Atopic dermatitis is a chronic inflammatory pruritic eczema that affects children and adults with a family history of atopy. Teledermatology and e-health contribute to the management of atopic dermatitis through online doctor-patient encounters, websites that provide patient educational resources, web-based applications, etc. Consequently, patients are encouraged to explore and find out more about atopic dermatitis, thus playing an active role in its mangement, along with their doctor. Teledermatology is considered to play an important part when it comes to optimizing care for atopic dermatitis during the Coronavirus Disease 2019 pandemic (COVID-19 pandemic) since digital technologies are means of communication that may assure a proper doctor-patient relationship. This article highlights the important role teledermatology might play in the management of atopic dermatitis during these times when social distancing is required to prevent the widespread of the virus.*

**Keywords:** telemedicine, teledermatology, e-health, atopic dermatitis.

Received: 5.7.2020

Accepted: 28.8.2020

## Introduction

Telemedicine has been defined as the exchange of medical information from one site to another through electronic means of communication to improve patient's health [1]. E-health refers to the use of digital technologies to enable communication among health care practitioners and also between health professionals and their patients [2]. A hallmark of dermatology is that this specialty is highly visual, which allows an examination by simply looking at the skin from the very beginning. This is one of the reasons why teledermatology is widely applicable.

## Teledermatology – an innovative aid in the management of dermatologic diseases

Teledermatology encompasses three main domains: „store and forward” – in which patients take pictures of the lesion or lesions in question and then send them to their doctor; „live-interactive”- it reffers to the live interaction between the doctor and the patient via video-call or phone calls and, finally, „hybrid setting” – which represents a combination between the two components mentioned above [3]. Teledermatology is successfully used in the management of chronic inflammatory skin

\* Clinic of Dermatology and Allergology, "Elias" Emergency University Hospital, Bucharst, Romania.

\*\* Department of Oncologic Dermatology "Elias" Emergency University Hospital, „Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania.

disorders like atopic dermatitis, psoriasis, but also to monitor acne or various types of eczema. A research from 2019 by Giavina Bianchi M *et al.* implies that teledermatology is useful in the management of approximately 63% of the most common pediatric dermatologic disorders, without patients having to show up at the clinic; it also highlights that eczema was the most frequent diagnose for the 3-12 years age group [4]. With regard to the impact of teledermatology on the patient's way of seeing this new type of interaction, a study from 2017 by Naka F *et al.* shows that patients feel content and about 72% of them would recommend this type of session [5].

Nevertheless, teledermatology has its limitations and challenges: defective quality of the video-call, lack of patient's video access, patients not able to either download an application or to make website accounts, medico-legal aspects, inability to perform any kind of procedure and others [6]. Moreover, distance consultations may affect the ability of the doctor to correctly diagnose diseases, to detect signs of disease that are not obvious to the patient, or even to identify other illnesses for which the patient does not request help at the time.

### **Telemedicine, e-health and atopic dermatitis**

Atopic dermatitis is a pruritic, inflammatory, chronic eczema that seems to affect children and adults with family history of atopy. Regarding the etiopathogenesis of atopic dermatitis, there are three main features to mention: the impact of the environmental factors, genetic defects in skin barrier function and an immune dysregulation resulting in an amplified T helper type 2 immune response. A complex interaction between these three factors is considered to be the starting point for atopic dermatitis. Telemedicine and e-health contribute to the management of atopic dermatitis through online doctor-patient sessions, websites that provide educational resources, online applications, etc. Consequently, patients are encouraged to explore and find out more about atopic dermatitis, thus playing an active role in its management, along with their doctor [7].

However, there can also be identified drawbacks of telemedicine in the management of atopic dermatitis. There are not rare the situations when the signs of disease are subtle and are hard to detect even in the clinical office, therefore the correct diagnosis may be delayed. Moreover, the majority of patients with atopic dermatitis are children and online consultations are usually done with parents or legal guardians, who may describe subjectively the health issue, increasing or decreasing the degree of severity. There are no official regulations for remote consultations and dermatologists should take into consideration the medico-legal issues that may arise.

### **Telemedicine and atopic dermatitis during COVID-19 pandemic**

Teledermatology is considered to play an important part when it comes to optimizing care for atopic dermatitis during the Coronavirus Disease 2019 pandemic (COVID-19 pandemic) since digital technologies are means of communication that may assure a proper doctor-patient relationship. Teledermatology may become an indispensable tool in the management of atopic dermatitis during these times when social distancing is required to prevent the widespread of the virus. An article published this year by M *et al.* emphasizes that access to digital means of communication in order to manage patients with atopic dermatitis during pandemic is of outmost importance [8]. Therefore, medical appointments at a distance, along with an appropriate skincare routine (the use of gentle cleansing agents in order to avoid allergic contact dermatitis, application of emollients and topic treatments) and immunosuppressive therapy or biological treatments are measures that might decrease the risk of relapse for patients with atopic dermatitis [8].

A research made this year in Italy by Brunasso AMG *et al.* points out the effectiveness of teledermatology (through email correspondence and phone calls) once the country declared a state of emergency. The study encompassed 195 patients, of which eleven had atopic dermatitis.

Nine out of eleven patients were told to continue the topical or systemic treatment they were taking before, and for one patient, initiation of Dupilumab was required. Managing dermatologic disorders from a distance was possible for 94% of the patients, while 6% of them were unapproachable [9]. COVID-19 pandemic is a social context that may affect, from a psychological point of view, the way patients with atopic dermatitis see themselves and the new reality they have to face; therefore, these changes might influence the disease's course. Garcovich S *et al.* highlight that quarantine, although a safety measure in the present moment, may lead to increased irritability, anxiety, depression and anger. These emotional reactions may have an adverse impact on patients with dermatologic disorders that are related to psychological stress, such as atopic dermatitis [10]. Accordingly, doctors should take into account that addressing the emotional needs of the patients, during the online sessions, might enhance the compliance to treatment and lengthen the period of time without flares.

## Discussions and conclusions

As mentioned above, tele dermatology and e-health represent innovative aid in the

management of dermatologic diseases and atopic dermatitis is no exception. Through websites, online applications and virtual interaction, patients with atopic dermatitis have a better understanding of their disease and play an active role in its management.

At the beginning, tele dermatology was used to provide health care services to those unable to benefit from a medical examination in clinics. This current situation, the COVID-19 pandemic, might represent a turning point regarding the use of tele dermatology in the management of dermatologic disorders.

Tele dermatology is considered to be one of the measures needed in an attempt to optimize care for patients with atopic dermatitis during pandemic. Because of tele dermatology, it is possible to maintain an effective doctor-patient communication while meeting at the same time a necessary condition nowadays: social distancing.

The limitations and challenges of tele dermatology should rather than undermine its use, represent a motivation in order to develop a technological infrastructure that properly supports this means of communication. In this way, crisis situations such as the current one could be successfully overcome.

## Bibliography

1. Tuckson RV, Edmunds M, Hodgkins ML. Telehealth. *N Engl J Med.* 2017;377:1585-1592.
2. Shaw T, McGregor D, Brunner M, Keep M, Janssen A, Barnet S. What is e-Health (6)? Development of a Conceptual Model for eHealth: Qualitative Study with Key Informants. *J Med Internet Res.* 2017;19(10):e324.
3. Burg G. Tele dermatology- its place in modern skin healthcare worldwide. *J Eur Acad Dermatol.* 2020;34: 733–745.
4. Giavina Bianchi M, Santos AP, Cordioli E. The majority of skin lesions in pediatric primary care attention could be managed by Tele dermatology. *PLoS One.* 2019;14(12):e0225479.
5. Naka F, Makkar H, Lu J. Tele dermatology: Kids are not just little people. *Clin Dermatol.* 2017;35(6):594-600.
6. Farshchian M, Potts G, Kimyai-Asadi A, Mehregan D, Daveluy S. Outpatient Tele dermatology Implementation During the COVID-19 Pandemic: Challenges and Lessons Learned. *J Drugs Dermatol.* 2020;19(6):683.
7. Sy W, Lamb AJ. Atopic Dermatitis Disease Education. *Adv Exp Med Biol.* 2017;1027:179-184.
8. Shah M, Sachdeva M, Alavi A, Shi VY, Hsiao JL. Optimizing care for atopic dermatitis patients during the COVID-19 pandemic. *J Am Acad Dermatol.* 2020;83(2):e165-e167.
9. Brunasso AMG, Massone C. Tele dermatologic monitoring for chronic cutaneous autoimmune diseases with smartworking during COVID-19 emergency in a tertiary center in Italy [published online ahead of print, 2020 May 26]. *Dermatol Ther.* 2020;e13495.

10. Garcovich S, Bersani FS, Chiricozzi A, De Simone C. Mass quarantine measures in the time of COVID-19 pandemic: psychosocial implications for chronic skin conditions and a call for qualitative studies. J Eur Acad Dermatol Venereol. 2020;34(7):e293-e294.

Conflict of interest  
NONE DECLARED

*Correspondance address:* Popa Liliana Gabriela  
Str. Dionisie Lupu, No. 37, 020021, District 2,  
Bucharest, Romania; Phone number: 0727173767  
E-mail: lilidiaconu@yahoo.com