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SUPPLEMENT ARTICLE

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Telemedicine for allergic patients during COVID-19

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Abstract

In the last few years, we have witnessed an important development in the medical field of both Mobile Health, such as the use of mobile communication devices, and other telemedicine tools in general, in order to support the surveillance of diseases from the moment of the first diagnosis to the therapeutic follow-up. Long before COVID-19, some authors had analyzed various possible evidence-based scenarios and had indicated how the use of telemedicine could prove to be extremely useful in epidemic situations, especially for the management of chronic patients, such as immune-allergic ones, who are notoriously in greater need of regular follow-up; however, as expected, the advent of the COVID-19 pandemic has amplified the differences between various countries, from the point of view of the propensity to use technological solutions in the health sector. The hope is that one positive outcome of the ongoing pandemic is that it will lead to an acceleration, by all the stakeholders involved, of the process of modernization of health care.

KEYWORDS

apps, contact tracing, COVID-19, immune-allergic patients, telemedicine

In the last few years, we have witnessed an important development in the medical field of both Mobile Health, such as the use of mobile communication devices (eg, smartphones and tablets, with related apps), and other telemedicine tools in general (a mix of medical and technological techniques that allow the treatment of a patient remotely), in order to support the surveillance of diseases from the moment of the first diagnosis to the therapeutic follow-up, while improving the possibility of "self-management" by patients, with the aim of a general increase in the quality of care. In this regard, some guidance documents have recently been published, which have assessed quality, usability, efficiency, advantages, limitations, and risks (with particular reference to data protection) of the aforementioned mobile solutions, both in the general context (WHO) and specifically in the immune-allergic one (EAACI[1]), underlining how at this moment the tools of "digital health" certainly cannot be considered substitutes for traditional medicine but can represent a valid complement (precision medicine); however, a recent Cochrane review has confirmed similar clinical efficacy outcomes by comparing remote monitoring (video consultations) in relation to traditional monitoring for chronic conditions such as diabetes and congestive heart failure.[2]

Long before COVID-19, some authors had analyzed various possible evidence-based scenarios and had indicated how the use of telemedicine could prove to be extremely useful in epidemic situations, with a high potential for improving both epidemiological investigations and clinical case management;[3] however, in most countries (including Italy), such services are neither integrated nor reimbursed by the relevant national health system, even in emergency situations, where early diagnosis with the isolation of the infected person

(and of their contacts) and their monitoring is of the utmost importance, and, as a last resort, a general quarantine.[4] Recently, the infection caused by SARS-CoV-2, recognized as a pandemic by WHO on March 11, 2020, has had a disruptive effect in that sense, first in Asia and then in the Western world. A great deal of the infection has been correlated to intra-hospital transmission, particularly in China; this underlined the need to limit patients' movements to the bare minimum, to reduce at the same time both the possibility that, if infected, they could infect other people (doctors and other patients), and their likelihood of getting infected in a highly at-risk setting like a hospital. In this context, therefore, telemedicine ("arriving" at the patient's home without putting them at risk) could be really useful, allowing for the treatment of patients with mild-moderate symptoms directly at home; at the same time, it would allow for the triage of suspected COVID-19 patients, for example, by video call, in order to carry out not only a medical history but also a direct observation of the patient, including for any early signs of respiratory distress.[5]

However, as expected, the advent of the COVID-19 pandemic has amplified the differences between various countries, from the point of view of the propensity to use technological solutions in the health sector. In this regard, a recent study has shown that in the United States from March 2 to April 14, 2020, telemedicine visits increased by 135% (from 369.1 per day to 866.8 per day) in emergency units and as much as 4345% (from 94.7 per day to 4209.3 per day) in non-emergency outpatient settings, with a higher use by patients aged 20 to 44 years (especially for urgent care); of all virtual visits, 56.2% of urgent and 17.6% of non-urgent visits were COVID-19-related.[6] In this case, therefore, the current health situation has caused a sudden expansion in the use of telemedicine, in a country already of high technological potential in the medical field. However in other nations, such as Italy, the scarcity and heterogeneity of the available equipment, the lack of interconnection between the various telemedicine systems and the electronic medical record of the national health system, the absence of economic support, and not least the presence of strict privacy rules have hindered the implementation of effective digital solutions, especially for the management of chronic patients, such as immune-allergic ones, who are notoriously in greater need of regular follow-up.[7]

In this regard, some American and Canadian authors have indicated criteria for the reorganization of Allergy and Immunology outpatient services during a pandemic: most visits should be postponed/delayed or managed through virtual contacts/consultations, with the exception of patients with primary immunodeficiency or uncontrolled asthma, or patients undergoing AIT, by developing and integrating telemedicine tools when possible, in order to reserve the few available places for the traditional outpatient visit to the most serious patients, according to the clinician's judgment.[8] In the same way, the pediatric section of EAACI has made some recommendations for the management of childhood allergies and immunodeficiencies in this particular situation: not interrupting continuous therapies for optimal control of chronic conditions such as severe asthma and immunodeficiencies (considered risk factors for complications from COVID-19) and prefer digital medical-patient communication whenever possible (telemedicine).[9] In addition, the same scientific societies that operate in the immune-allergic area (in Italy, SIAIP and SIMRI in the pediatric field, SIAAIC and AAIITO regarding adult population) have recently published handbooks to help patients in the "differential self-diagnosis" between the symptoms of COVID-19 infection and those of respiratory allergies typical of the spring period,[3] as well as in the "remote" management of both immune-allergic clinical manifestations and chronic therapies (such as AIT and biologic drugs). In particular, the "New Digital Technologies (NTD)" Committee of SIAIP has developed some practical advice about management of immune-allergic children during the COVID-19 pandemic:

Key message

The use of telemedicine proves to be extremely useful in epidemic situations, especially for the management of chronic patients, such as immune-allergic ones.

- Allergic patients can regularly monitor the fluctuation of the pollen counts by consulting online pollen tracking sites.
- Using digital apps is highly recommended to automatically monitor and communicate your own symptoms to the referring physician.
- In this specific situation, communicating with one's own physician through popular digital messaging apps can also prove to be particularly helpful.

One final fascinating aspect of telemedicine in times of COVID-19 concerns the development of smartphone applications capable of tracing the contacts of the user with potential confirmed/suspected cases of recent infection of SARS-CoV-2, suitable for monitoring the trend of the epidemic and for the consequent possibility of timely response, with particular regard to the aspects of protection of sensitive data and usability by the very same user; such projects are being carried out in various countries, including Italy ("Immuni" app).[10]

Ultimately, the hope is that one positive outcome of the ongoing pandemic is that it will lead to an acceleration, by all the stakeholders involved, of the process of modernization of health care, which is already underway but still curbed, both because of the reticence of a part of the medical world and the need to combine the effectiveness of these new tools with compliance with the current regulatory frameworks (in particular those regarding privacy; in this regard NTD Committee SIAIP is conducting a survey among Italian doctors); in this particular health context, the possibility of using an adequate but at the same time safe medical service in terms of avoiding contagion, as telemedicine could be, could also allow to overcome the patient's remaining level of distrust, therefore contributing to definitively perfecting and implementing such a method, not only today but also in a post-pandemic future.[4]

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

AUTHOR CONTRIBUTION

Stefano Pattini: Conceptualization (equal); Investigation (supporting); Writing-original draft (lead); Writing-review & editing (lead). **Velia Malizia:** Conceptualization (equal); Investigation (supporting). **Alessandro Travaglini:** Conceptualization (equal). **Maria Antonia Brighetti:** Conceptualization (equal). **Auro Della Giustina:** Conceptualization (equal). **Ifigenia Sfika:** Conceptualization (equal). **Alessandro Di Menno di Bucchianico:** Conceptualization (equal). **Salvatore Tripodi:** Conceptualization (equal); Investigation (lead); Supervision (lead); Writing-review & editing (supporting).

PEER REVIEW

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REFERENCES

1. Matricardi PM, Dramburg S, Alvarez-Perea A, et al. The role of mobile health technologies in allergy care: an EAACI position paper. *Allergy*. 2020;75:259-272.
2. Flodgren G, Rachas A, Farmer AJ, et al. Interactive telemedicine: effects on professional practice and health care outcomes. *Cochrane Database Syst Rev*. 2015;CD002098.
3. Ohannessian R. Telemedicine: Potential applications in epidemic situations. *Eur Res Telemed*. 2015;4:95-98.
4. Ohannessian R, Duong TA, Odone A. Global Telemedicine implementation and integration within health systems to fight the COVID-19 pandemic: a call to action. *JMIR Public Health Surveill*. 2020;6:e18810.
5. Portnoy J, Waller M, Elliott T. Telemedicine in the era of COVID-19. *J Allergy Clin Immunol Pract*. 2020;8:1489-1491.
6. Mann DM, Chen J, Chunara R, et al. COVID-19 transforms health care through telemedicine: evidence from the field. *J Am Med Inform Assoc*. 2020;27:1132-1135.
7. Omboni S. Telemedicine during the COVID-19 in Italy: a missed opportunity? *Telemed J E Health*. 2020;26:973-975.
8. Shaker MS, Oppenheimer J, Grayson M, et al. COVID-19: pandemic contingency planning for the allergy and immunology clinic. *J Allergy Clin Immunol Pract*. 2020;8:1477-1488.
9. Brough HA, Kalayci O, Sediva A, et al. Managing childhood allergies and immunodeficiencies during respiratory virus epidemics - the 2020 COVID-19 pandemic. *Pediatr Allergy Immunol*. 2020;31:442-448.
10. Kamel Boulos MN, Geraghty EM. Geographical tracking and mapping of coronavirus disease COVID-19/severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) epidemic and associated events around the world: how 21st century GIS technologies are supporting the global fight against outbreaks and epidemics. *Int J Health Geogr*. 2020;19:8.

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