Experiência de um Projecto-Piloto de Rastreio Teledermatológico no Serviço de Dermatovenereologia do Hospital Garcia de Orta

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RESUMO – Introdução: A prática da telemedicina em geral e teledermatologia em particular tem sido objecto de crescente interesse dada a evolução tecnológica dos equipamentos, os potenciais benefícios a nível dos custos em saúde, melhoria das listas de espera e a capacidade de prestar cuidados especializados a um maior número de doentes. O principal objectivo deste estudo foi avaliar a acuidade diagnóstica e a fiabilidade de uma consulta presencial quando comparada com uma teleconsulta do tipo armazenamento e envio no diagnóstico de lesões únicas suspeitas. **Material e Métodos:** Foi realizado um estudo retrospectivo de todos os doentes observados no projecto-piloto estabelecido entre o Serviço de Dermatovenereologia do Hospital Garcia de Orta e 5 centro de saúde da área de influência no período de Junho a Dezembro de 2016. O projecto consistia na referenciação de uma lesão suspeita pelo médico de Medicina Geral e Familiar através do envio de uma fotografia macroscópica acompanhada de uma breve informação clínica. A todas as lesões era atribuído um telediagnóstico, seguido de uma consulta presencial realizada pelo mesmo dermatologista. O diagnóstico-padrão utilizado para a medição da acuidade diagnóstica foi o diagnóstico histopatológico, ou, nalguns casos de lesões benignas, o diagnóstico clínico e dermatoscópico. **Resultados:** Foi incluído um total de 68 doentes, correspondente a 68 lesões, 31 (46%) mulheres e 37 (54%) homens. A idade média foi de 67 anos, com uma idade média mais baixa no subrupo dos doentes do género masculino (52 *vs* 88 anos). As lesões malignas e pré-malignas corresponderam a 53% dos casos. A concordância diagnóstica foi de 54%. A consulta presencial mostrou uma melhor acuidade diagnóstica quando comparada com a teleconsulta (85% *vs* 77%). **Conclusão:** Este estudo ilustra o potencial da teleconsulta do tipo envio e armazenamento no diagnóstico de lesões cutâneas suspeitas referenciadas dos cuidados primários.

PALAVRAS-CHAVE – Neoplasias da Pele/diagnóstico; Telemedicina.

Experience of a Pilot Project of Teledermatology Screening at the Department of Dermatology and Venereology of Hospital Garcia de Orta

ABSTRACT – Introduction: *The practice of telemedicine in general and teledermatology in particular has been gaining renewed interest given the technologically improved equipment, the potential benefits in terms of costs and waiting times and the ability to deliver specialised healthcare to more patients. The main aim of the study was to assess the diagnostic reliability and accuracy of a face-to-face consultation compared with store-and-forward teleconsultation in clinically suspicious solitary lesions.* ***Material and Methods:*** *This is a retrospective study of all the patients included in a pilot project between Dermatology Department at Hospital Garcia de Orta and 5 regionally-dependent health centres from June to December 2016. It consisted in the referral of a clinically suspicious solitary lesion photograph by the general practitioner with a short clinical information. All the lesions were*

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assigned a telediagnosis, followed by a face-to-face consultation performed by the same dermatologist. The gold-standard for measuring diagnostic accuracy was the histopathological diagnosis and, in some cases of benign straightforward lesions, the clinical and dermoscopic diagnosis performed by the dermatologist. ***Results:*** *A total of 68 patients, corresponding to a total of 68 lesions, were included in the study, 31(46%) female and 37 (54%) male patients. The mean age was 67 years, with a lower mean age in the male group (52 versus 88 years). 53% of cases corresponded to malignant and pre-malignant lesions. The diagnostic concordance was 84%. Face-to-face consultation showed a better diagnostic accuracy than teleconsultation (85% vs 77%).* ***Conclusion:*** *This study illustrates the potential of teledermatology to diagnose clinically suspicious solitary lesions referred from primary care.*

KEYWORDS *– Skin Neoplasms/diagnosis; Telemedicine.*

INTRODUCTION

It is well known that early diagnosis and treatment of skin cancer improves prognosis.[1] As rates of skin cancer are increasing,[1] there is a growing concern about the timely delivery of health care both in rural and urban areas. In this regard, teledermatolgy could be a valuable tool in triage referrals, reducing time to diagnosis and time to treatment of malignant cutaneous lesions.

Telemedicine relies on the use of technology of communication for exchanging expert medical information. Since the Dermatology is an especially telemedicine-prone field given the importance of its visual component, there is a growing interest in the potential, feasibility and reliability of teledermatology.

The two most common types of teledermatology are store-and-forward consultation, which involves transfer of clinical data to be evaluated at another location and time and real-time (or interactive) consultation.[2] The former has several advantages including lower costs, use of less complex equipment and less time-consuming consultations.[2]

Nevertheless, before implementing new modes of health care practices, it is important to establish its diagnostic accuracy. In the particular case of skin cancer, is it important to compare the diagnostic accuracy between a store-and-forward consultation and a face-to face-consultation.

MATERIAL AND METHODS

We retrospectively analysed all the clinically suspicious solitary lesions referred to our Teledermatology department by the general practicioners from five regionally linked health centres between June and December 2016, in a weekly consultation with 1 to 2 hours duration. All referrals were performed with a macroscopic photograph of the entire lesion, some of them including a ruler in the image, accompanied by brief clinical information which included demographic data, relevant personal and family clinical history, lesion duration and evolution (Figs.1 and 2).

All referrals were assigned a teleconsultation diagnosis and a face-to-face diagnosis, performed by the same dermatologist.

The reference-standard was the histopathologic result, or in some cases of benign straightforward lesions, the clinical and dermoscopic diagnosis.

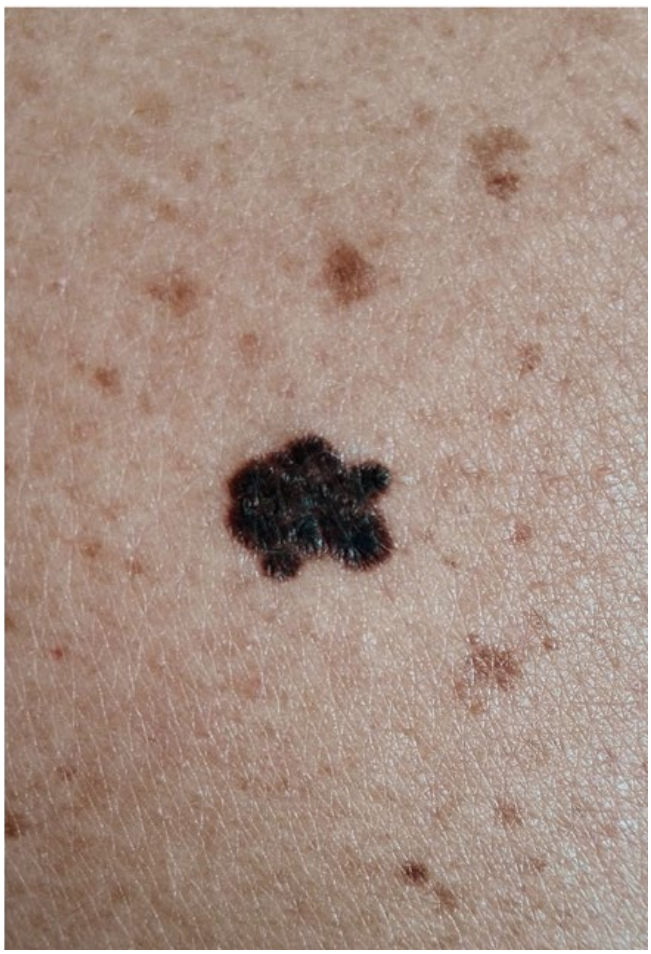

Figure 1 - Referral macroscopic photograph of pigmented lesion on the leg of a 54-year-old male patient.

RESULTS

Between June and December 2016, from a total of 103 referrals, 68 patients were included. The exclusion criteria were missing or low-quality photograph (n=19 - 18.4%)), multiple lesions not suitable for the category of solitary suspicious lesion (n=12 - 11.6%) and inability to attend the face-to-face consultation (n=4 - 3.8%). From the total of patients included, 31 (46%) were female and 37 (54%) male. The mean age of the population was 67

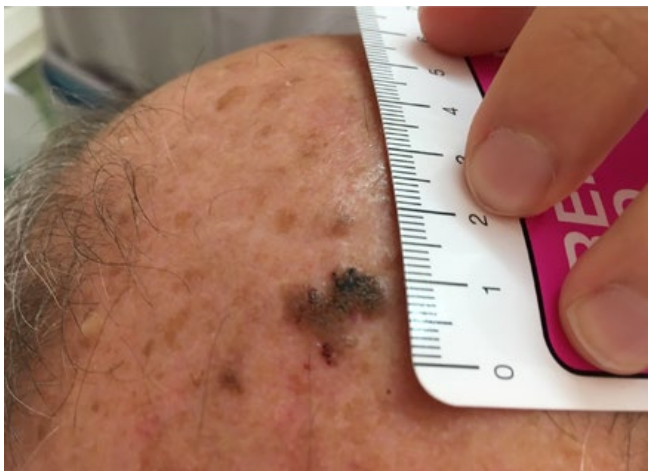

Figure 2 - Referral macroscopic photograph of a pigmented lesion on the trunk of a 61-year-old female patient.

years, ranging between 25 and 91 years. The mean age in the female group was 88 years compared to 52 years in male patients group.

Benign lesions accounted for 47% of diagnoses in our study, with 53% corresponding to malignant and pre-malignant lesions. The most common referred benign lesions included seborrheic keratoses (13%), melanocytic nevi (9%) and hemangiomas (5%). Other benign lesions referred were keloid scars and viral warts.

The most frequently diagnosed malignant or pre-malignant lesions were basal cell carcinomas (25%), actinic keratoses (15%), squamous cell carcinomas (7%) and malignant melanoma (6%).

The reference-standard for diagnosis used was the histopathological result in 55% of cases and the clinical and dermoscopic diagnosis in cases of benign straightforward lesions, which occurred in 45% of cases, assuming a diagnostic concordance of 100% in these cases.

The diagnostic accuracy for suspicious lesions measured as the concordance of the clinical diagnosis compared to the reference-standard was 77% for teledermatology and 85% for face-to-face consultations.

The diagnostic concordance between the teledermatology diagnosis and face-to-face diagnosis was 84%.

The mean time to face-to-face diagnosis was 54 days in the pilot study compared to 139 days in the conventional referral system.

DISCUSSION

The aim of this study represents a proof-of-concept and it does not reflect the current scenario of teledermatology in the national healthcare setting. In this study we were able to measure only some of the intermediate clinical outcomes such as the diagnostic concordance between a face-to-face consultation and a store-and-forward consultation in suspicious solitary skin lesions. We managed to show a good clinical diagnostic concordance of 84% between teledermatology and face-to-face consultations and an acceptable diagnostic accuracy for teledermatology compared to face-to-face consultation (77% vs 85%), the results being similar to other studies.[3-7] Nevertheless we have to point out that 18.4% of cases had to be excluded by the bad quality of the photos, which represents a significant drawback.

Another important issue we were able to address was the missed malignant diagnoses by the referral physician. In four patients (6%) a secondary malignant lesion (in all cases a basal cell carcinoma) was detected on clinical inspection.

From a total of 10 melanocytic lesions referred, only five were considered atypical by the dermatologist, and four were malignant melanoma.

The study also contributes to our understanding of the referral patterns from the primary care. Almost half of referral diagnoses corresponded to benign lesions, some of which could otherwise have been managed in the primary care setting, improving the waiting times and, consequently, the early diagnosis and treatment of malignant lesions.

As this was a proof-of-concept study, it did not address issues such as differences in treatment options and the real effect on waiting lists. This drawback resulted from the design itself since all the patients were scheduled for a face-to-face consultation, leading to the inability to measure time till diagnosis and time till treatment of teledermatology-based referrals when compared with the traditional referral system. This is an important issue to be addressed in future investigations.

Furthermore, it would be of paramount importance to assess the performance of teledermatology in diagnosing and managing inflammatory dermatoses before we can establish its value in delivering timely, good standard health care.

It is important to notice that when evaluating teledermatology systems, the clinical outcomes are measured in terms of number of consultations avoided, time to intervention and consultation time, which are intermediate outcomes, instead of representing fundamental clinical endpoints, such as mortality, morbidity, quality of life and others. From this point of view, there is not much data available comparing a full teledermatology consultation compared to teledermatology as a complement tool to clinical decision-making.

CONCLUSION

In conclusion, teledermatology could improve accessibility to healthcare in geographically remote areas and improve standards of care in demographically denser areas. Nevertheless, there is a fundamental difference between the concept of teledermatology-assisted triage system and telemedicine consultations. Despite the strong visual component inherent to Dermatology as a medical specialty, the conduction of a full teledermatology consultation is error-prone for various reasons and can hardly substitute a face-to-face consultation. The teledermatology-assisted triage system, on the other hand, seems an effective instrument to be integrated in the clinical practice.[7]

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There are several requirements for an optimal implementation of teledermatology, namely, the education of professional involved in order to acquire role-specific competences such as patient selection, teledermatology diagnosis training, obtaining high-quality photographs and using relevant clinical data in the referrals. There is also the need to continuously monitorize and audit the practice of teledermatology in terms of patient outcomes healthcare standards met.

Much more research is needed into all levels of outcomes and limitations of such a service and its effects on intermediate and endpoint clinical outcomes, since the purpose of any clinical instrument, in the optimal setting, is to improve patient care and elevate healthcare standards.

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