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Patient Satisfaction with Tele- and Video-Consultation in the COVID-19 Era – A Survey of Vascular Surgical Patients

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Background: The COVID 19 pandemic has resulted in the increasing use of telemedicine due to the advantages of avoiding viral transmission. Evidence suggests that telemedicine, for certain conditions, may be as effective as face-to-face consultations; however, there is no research to date regarding vascular patients' acceptance or satisfaction with telemedicine during and after the COVID-19 pandemic.

Methods: A patient satisfaction interview was designed to survey three aspects of the service: patient acceptability of teleconsultations as a replacement to physical clinics; their views of teleconsultation during the pandemic; and the future role of teleconsultations postpandemic. Patients undergoing remote teleconsultation (either by telephone or video software), between April and June 2020 were suitable for inclusion. Patients were contacted by telephone in August 2020 to undertake the survey. Local "Research and Development" approval was obtained.

Results: A total of 333 patients had a consultation with a vascular consultant between April and June 2020, of which 178 were teleconsultations. Successful contact was made with 72 patients, of whom 68 agreed to participate; 10 patients had undergone video consultations, while the remainder had telephone consultations. Teleconsultations were widely viewed as acceptable, and over 90% of patients felt they were beneficial. 91% felt that not needing to travel for appointments was advantageous to them. The option of teleconsultation during the COVID pandemic was valued by 94% of the cohort. While all interviewees felt teleclinics should continue during the pandemic, the majority (74%) also wanted to use teleconsultations for clinic appointments after the pandemic.

Conclusions: Telemedicine is viewed by vascular patients as generally acceptable and beneficial for use during the pandemic. The majority of patients wanted future telemedicine appointments postpandemic. Telemedicine services started as a result of the COVID-19 pandemic, which may have been viewed as a temporary measure, should be planned to continue long term.

INTRODUCTION

The COVID-19 pandemic has challenged medical practice in multiple ways. The overwhelming burden of high patient volumes has strained healthcare provision across the globe. However, COVID-19 has also challenged the way healthcare is delivered and has led to extensive adjustments to clinical practices. During the first wave of the pandemic, there had been a widespread move to reduce nonessential patient contact and prevent unnecessary travel to minimize exposure. One of the main areas where

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adjustments were needed was in the patient attendance at clinics. Pre-COVID-19 surgical outpatients were an opportunity to physically meet and examine patients, as well as counsel and consent for surgical interventions as appropriate. During the height of the pandemic, this interaction posed a significant risk to patients, especially as most clinics are run within a hospital setting. Vascular patients represent a higher risk cohort of patients as they are usually comorbid with other significant diseases.[1] Most healthcare providers suspended nonemergent surgeries and clinical encounters. This, in turn, led to several surgical specialties using telemedicine to conduct virtual clinics, many using this method for the first time.[2]

Telemedicine has been used successfully for over 2 decades,[3] and as technology has evolved, consultation quality has improved.[4] Previously, telemedicine was mainly reserved for patients who were either geographically remote, incapacitated, or with limited available time for avoiding the inconvenience of travel. For certain conditions, telemedicine has transformed healthcare provision.[5] However, telemedicine uptake by surgical specialties, in comparison to other specialties, has been low, with a relative paucity of publications and a lack of high level of evidence on outcomes.[6]

There are recent data to suggest virtual consultations have a positive impact by allowing the continuation of surgical services for various specialties during the pandemic while preventing patient movement and contact.[7] Telemedicine also avoids the use of personal protective equipment, thereby conserving these sometimes scarce resources.[8] Surgical specialties such as Orthopedics and Neurosurgery have reported that teleconsultations during the pandemic offer an acceptable method of conducting examinations for certain patients with a high level of doctor and patient satisfaction.[9,10] While it would be reasonable to hypothesize that similar findings would be found in vascular surgery, the acceptability and value of teleclinics for vascular patients have not been assessed during the COVID-19 outbreak. The aim of our study was to evaluate the patients' views on teleconsultation, their satisfaction with the service during the pandemic, and gauge their views on teleconsultations being used in the future post COVID.

MATERIALS AND METHODS

A cohort of sequential patients who had teleconsultations with any vascular consultant at a single Health Board between April and June 2020 (corresponding to the United Kingdom [UK] wide lockdown) were retrospectively identified. Teleconsultations were conducted either via telephone or using ''Attend Anywhere,'' a secure National Health Service (NHS) video conferencing service.[11] ''Attend Anywhere'' enables the patient, and other family members, to attend the consultation using a web link. All patients who had a virtual consultation during this period were included, and no exclusion criteria other than death were applied. Data regarding presenting a complaint, the outcome from consultation, and further follow-up (if any) were also collected.

The interviews were conducted during August 2020, by which time local lockdown restrictions had been relaxed. A maximum of three attempts were made to contact patients via telephone. Basic demographic data were obtained from patients and electronic hospital records. Local ''Research and Development'' approval was obtained (approval reference: SA/1165/20) prior to commencing the data collection.

The interview script was designed in collaboration with a team of psychologists who have great experience in designing interviews and questionnaires for use in clinical contexts. Following standard practice in developing surveys for a new area, a series of stages were undertaken in the construction of the items for use in this study. As a first step in the design of the survey, a range of previous studies was consulted in order to establish possible content for the questionnaire.[12,13] After this content validity check, 27 possible items were identified for inclusion. After discussion within the medical team to determine the relevance and face validity of these items for the present sample, 19 items were selected for use. Previously used items, such as: ''I believe I could become productive quickly using this system'' and ''The way I interact with this system is pleasant,'' were excluded as being too vague or too focused on the technology and not on the consultation process.

As the purpose was to ascertain responses to particular items, internal reliability was not calculated. The questions were constructed to gauge three aspects of service provision and patient perceptions. First, the patients were asked about the acceptability of teleconsultations as a replacement for the traditional face-to-face clinic attendance with a consultant. The second aspect was to determine if the patients perceived any benefits of teleconsultation over the traditional clinic model during the pandemic. Third, the interview questions asked about the future role and acceptability of virtual clinics in a post COVID-19 era. The initial interview script design was piloted on 8 patients, and

refined based on feedback on the performance of the script as an interview tool. The final interview script comprised 18 statements eliciting a ''yes'' or ''no'' answer from the interviewee (Table I). A decision was made to use a dichotomous (yes/no) scale in preference to a Likert scale, as it was unclear what the reliability of such a rating scale would be, nor was it clear that such intermediate ratings would have great external validity. There was a final open question noting the impact of COVID-19 on patients' views on teleconsultation. Any further comments by the interviewees expanding on their reason for a given response were recorded. The entire patient interview using the script took approximately 10 min to complete. While this study was not designed to investigate differences between patient cohorts and responses, we hypothesized that age might be the most important variable in differences in responses. Questions with a ''Yes'' response rate of <75% and >25% (arbitrarily selected as demonstrating a significant difference in response rates) were analyzed further by comparing the mean age of the respondents (Student's *t*-test).

RESULTS

A total of 333 patients had a vascular consultation during the period of April-June 2020. Of these, 178 were teleconsultations. Patients were vetted for either face-to-face or virtual consultation by an individual consultant based on data within the referral document. Successful contact was made with 72 patients, of whom 68 agreed to participate and complete the telephone interview. Four patients refused to participate due to other commitments. There were 40 men and 28 women interviewed. Mean age of the cohort was 68.4 (SD +/− 11.7) years; 10 patients had undergone consultations using ''Attend Anywhere'' video-consultation software, while 58 had consultations via telephone; 21 patients had their first vascular consultation with our team via teleconsultation, and the remainder were follow up patients. Patients were seen for a variety of reasons (venous disease 19%; wound problems 17%; postoperative review 16%; aneurysmal disease 15%; intermittent claudication 13%; chronic limb threatening ischaemia 11%; thoracic outlet 2%; other 7%). Outcomes from virtual consultations resulted in discharge (50%), further face-to-face follow up (21%), ongoing virtual follow up (15%) and listing for a procedure (14%); 8% of patients were also placed on surveillance for aneurysms or arterial bypass grafts following their consultation.

The first element of the interview asked about the acceptability of teleconsultation as a replacement for face-to-face consultations. The majority of the patients (90%) felt they had improved access to the vascular team as a result of teleconsultation. A similar number (91%) felt that virtual clinics provided well for their current needs. All patients were happy with using the phone or video consultation software independently. Overall >90% were satisfied with the teleconsultation service, felt it was as helpful, and provided as much privacy as a traditional face-to-face clinic appointment. A large proportion of patients (91%) felt that not needing to travel for appointments was advantageous to them.

The second part of the interview gauged patient perception of any benefits provided by virtual consultations during the pandemic. 85% felt at high risk of contracting/spreading COVID-19 at the time of their virtual clinic appointment (April to June 2020), and 76% at the time of the telephone interview (August 2020). Only 37% of patients felt that they would be comfortable attending a hospital appointment (mean age between those comfortable and not comfortable attending hospital appointment similar, $P = 0.64$). Overall, the option of teleconsultation during the COVID pandemic was valued by 94% of the interviewed cohort of patients.

The third part of the interview explored patients' attitudes toward the future role of teleconsultation. All patients agreed that while COVID was widely prevalent, teleconsultations were an acceptable way to conduct future clinic appointments. Unexpectedly, a large proportion of patients (74%) reported that they would prefer to continue with virtual clinics and teleconsultations postpandemic. The minority (26%) who preferred face-to-face consultations to resume postpandemic were older (mean age 73.7 +/−5.9 vs. 66.6 +/−12.7 years; $P = 0.03$). Although this group was satisfied with virtual clinics in the present COVID-19 climate, they cited the need for social interaction as the main reason of their preference for resuming face-to-face clinics in the future. Of all the patients interviewed, 79% thought the option of including other family members to join video consultations remotely was a positive for future consultations. There were no significant differences in overall satisfaction between the video and teleconsultation groups ($P = 0.53$). There were also no differences in satisfaction between new versus follow-up ($P = 0.61$), nor did the presenting complaint (arterial versus venous disease) have a significant impact on satisfaction with teleconsultations. In the free-

Table I. Telemedicine interview questions and responses

Question	Yes (%)	No (%)
The acceptability of teleconsultation as a replacement for the face-to-face consultation		
Teleconsultation improved access to vascular team	**90**	**10**
The fact I did not need to travel to the clinic was important to me	**91**	**9**
Teleconsultation provided well for my present healthcare needs	**91**	**9**
The technology enabled me to see/hear the clinician and communicate effectively	**99**	**1**
The technology was easy to use, by myself	**100**	**0**
I was able to express myself during the teleconsultation	**97**	**3**
The teleconsultation offered as much privacy as face-to-face	**99**	**1**
The teleconsultation was just as helpful as a face-to-face consultation	**94**	**6**
Overall, I was satisfied with my teleconsultation service	**97**	**3**
The perceived benefit (if any) of teleconsultation during the COVID-19 pandemic		
During the pandemic, I feel safer using teleconsultations than attending face-to-face clinics	**96**	**4**
If teleconsultation options did not exist, I would feel comfortable attending face-to-face consultations during COVID	**37**	**63**
I felt face-to-face consultations posed a high risk of contracting or spreading COVID, at the time of my appointment	**85**	**15**
I think face-to-face consultations pose a high risk of contracting or spreading COVID, now	**76**	**24**
The option of teleconsultations has been important to me during the COVID pandemic	**94**	**6**
The future of teleconsultation services		
Teleconsultations are an acceptable way to do future clinic appointments, while COVID is still circulating	**100**	**0**
I would use teleconsultations in the future, post COVID	**74**	**26**
The option of getting family members to join in remotely is appealing, and a positive for future teleconsultations	**79**	**21**

text responses, the main theme that was identifiable was the patients' perception of teleconsultations being safer, with over 40% of patients commenting on this aspect. A quarter of the respondents found teleconsultations more convenient, avoiding the need to travel and take time off work to either attend personally or accompany the family.

DISCUSSION

With the ongoing COVID-19 pandemic and high risk of disease transmission, the drive to prevent unnecessary patient contact remains critical. Many surgical specialties have moved toward virtual clinics to provide easier access to their services while preventing face-to-face contact and potential disease spread.[7,14] COVID-19 surgical teleclinics have been considered effective by clinicians and satisfactory by patients[15] A move to virtual consultation may also result in economic benefits due to reduced number of staff and clinic rooms required.[16,17] Vascular patients are typically comorbid (e.g., chronic obstructive airway disease, coronary disease, and diabetes), putting them at higher risk of serious complications from COVID-19 infection.[18,19] Data from our study suggest that teleconsultations are largely welcomed by vascular patients, and the majority felt it reduced the risk of disease spread while enabling access to clinical services. The majority were agreeable to continuing with teleconsultations, while COVID-19 infection remains a pandemic. This is in line with data from similar studies reporting high levels of patient satisfaction with virtual consultations from other surgical specialties during the pandemic.[10,20] Our data did not reveal the difference in attitude toward teleconsultations due to age, which has been previously identified.[1] Nor did we notice a difference between new versus follow up patients or of presenting complaint.

Perhaps more importantly, most were happy to use teleconsultation in the future postpandemic. Patients felt it gave them easier access to services, avoiding the need to travel, and offered an effective and practical solution to having a vascular consultation remotely. A few patients also felt the option of having remote family members included in the virtual consultation (a function of ''Attend Anywhere'') was as effective as being accompanied by them to clinic appointments. Remote consultations most likely reduce the need for people to take time off work, either for their own appointment or for those who provide transportation for patients attending the clinic.

Our findings suggest that the implementation of teleconsultations, which may have been initially considered temporary for the duration of the COVID pandemic, should be accepted as part of the future working practices of vascular surgical services. For certain patients, such as those with complex wounds or where physical examination is required, face-to-face consultations will remain essential. However, for a large proportion of patients, virtual clinics provide an adequate and welcome alternative. While we only assessed patients within a limited geographical area, we hypothesize that our patient cohort, vascular practice, and impact of COVID-19 are broadly similar to the other UK and international centers. It is, therefore, likely that the results presented herein are generalizable to most UK vascular centers and other centers with similar COVID-19 experiences and vascular practices. Units should consider transforming temporary teleclinics into permanent ones, alongside local policies to aid triage of patients and identify those suitable for teleconsultations. It may be that ''hybrid'' clinics, combining face-to-face and remote consultations, have become more commonplace. These have been incorporated into the author's institution for over 12 months at the time of writing, and are generally acceptable to both patients and staff. It is worth noting that 21% of patients undergoing a teleconsultation in this study ended up being brought back for face-to-face review. This duplication of work is invariably a waste of resources, and regular monitoring of this rate would be important for those setting up these clinics.

The study has some limitations. The small number of video consultations is a limitation, although overall satisfaction was similar between both groups. The decision as to which patient to bring to a telemedicine clinic (rather than face-to-face) was subjectively completed by an individual consultant, which may be a source of bias. This study focused on patients' perception of teleconsultation and did not measure the accuracy of diagnoses or time to definitive treatment, which may be worse with teleconsultation. While the standard practice was that if there was clinical uncertainty regarding the diagnosis during the teleconsultation, a face-to-face review was organized, we have not evaluated the impact of this, if any major diagnoses were missed, or if the clinical delay due to repeated clinic appointments resulted in a major incident (e.g. rupture of a large aneurysm). Neither did we examine clinician satisfaction. Further work is therefore required to establish robust policies to ensure only appropriate patients are managed with teleconsultation..

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