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The use of virtual telephone clinic in elective foot and ankle follow up

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Abstract

Introduction: Virtual clinics have been shown to be safe and cost-effective in many specialties. Many articles have been found in the literature about its usefulness in fracture occasions, but we have not found many discussing its effectiveness in foot and ankle elective cases follow ups. The aim of this audit is to show its safety, clinical outcomes, and complications. **Patients and methods:** In Princess Alexandra Hospital, UK, we collected data from COSMICS system which contained patient contact details, PACS and case note management system were used to see previous investigations and dictation letters and to check the outcome of the virtual clinic. **Results:** 292 patients were included, from them 167 were females (57.8%), while 125 were males (42.8%).148 patients were contacted by mobile phones (50.7%), 41 patients (14%) were contacted by landline, and unfortunately 67 patients (22.9%) have not picked the phone. From the 292 patients, 232 (79.5%) patients were dischargedone patient requested to be seen face to face. 40 patients (14%) were listed for being reviewed and 12 patients were listed for surgery (4.1%). 8 patients were listed for having PRP/local anesthetic/ steroid injection. **Conclusion:** Virtual telephone clinics for elective foot and ankle cases are very effective way for management of busy clinics with long waiting lists provided that it was run safely. We reported from our study the rules by which we run it and many benefits and drawbacks were also highlighted with our recommendations to maximize the gain from it.

Keywords: Virtual clinic, Foot and ankle, Follow up, Safety, Effectiveness, Waiting lists.

INTRODUCTION

Virtual clinics are outpatient appointments conducted by telephone whether mobile phone or landline. A dedicated time slot on a certain day will be allocated to the patient, but rather than the appointment taking place in a hospital clinic, it will be done over the telephone. This is provided that the information can be given to patients safely without a face-to-face meeting. Our trust, Princess Alexandra Hospital Foundation Trust in United Kingdom (UK) offers this service. We noticed that too many appointments are cancelled or missed and there sometimes can be long waiting times for letters and appointments; so we decided that running virtual clinics might be of benefit to speed up patient access to orthopedic care at our hospitals. During this telephone call, the specialist/ consultant will ask the case questions about the health, symptoms improvement/ worsening and personal circumstances expectations and advise what test/s he/she may need to have.

There are two types of virtual clinic:

- A phone call between thehealth care professional responsible for care and a patient to discuss results, provide reassurance or communicate actions
- A virtual review (clinical letter) to the patient and their GP to communicate results, reassurance or actions.

Traditional foot and ankle clinics often represent one of the busiest clinics in a hospital and involve coordinated services from orthopedic surgeons, plaster technicians, radiologists, radiographers, physiotherapists and other allied health professionals to deliver care to those who present with a wide variety of musculoskeletal injuries [1].

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Virtual clinics have been shown to be safe and cost-effective in many specialties, yet barriers exist to their implementation in orthopedics [2]. Many hospitals in UK started to implement virtual fracture clinics for management of various fractures away from the traditional clinics in order to reduce unnecessary work and costs [3]. Most of the concerns for doing so often center on whether it is safe to do so. For certain conditions such as with occult or minimally displaced radial head fractures when the natural history is predictable and clinical course is well known by orthopedic surgeons, this seems very reasonable and acceptable results have been seen for such injuries [4].

Objective:

In our study, we have not studied any new case referral. We only run the clinic on previously seen and investigated cases by a foot and ankle consultant. The aim of this study is to highlight the importance of only one type of virtual clinics which are the telephone clinics both to the NHS and to the patients receiving our health service in terms of assessing its safety, clinical outcomes, any complications and its cost effectiveness.

In addition, we will discuss some of the benefits and drawbacks that we have found from this audit study and our proposal how to maximize the benefits and avoid the drawbacks.

PATIENTS AND METHODS

This study was a clinical audit of current practice; therefore, no research ethics committee approval was required. Data was collected about nine elective telephone foot and ankle clinics run by a consultant of foot and ankle unit in Princess Alexandra Hospital NHS foundation trust in the period between November 2018 to May 2019. The Princess Alexandra Hospital NHS Trust serves a population of 258,000 and provides healthcare services to the communities of Harlow and the surrounding areas. It runs Princess Alexandra Hospital in Harlow, Essex, England which is a 501 bedded District General Hospital providing acute and specialist services to a local population of 258,000 people.

From these nine clinics, eight were all day clinic from 9 a.m. to 5 p.m., while two were afternoon clinics from 1.30 p.m. to 5 p.m. All cases were follow up cases seen, investigated, and treated by a previous foot and ankle consultant. From 303 patients we included 292 patients only, as we excluded patients in whom there is no dictation letter due to problems of the dictation system.

The dates of clinics were as follows (12/11/2018, 14/12/2018, 03/12/2018, 05/12/2018, 14/03/2019, 15/03/2019, 30/04/2019, 07/05/2019, and 08/05/2019). Inclusion criteria were all patients referred to the foot and ankle elective clinic by previous foot and ankle consultants, emergency department consultant, or by the patient general practitioner for follow up of their previous foot and ankle problems. Patients who are new referrals have not been seen in this clinic and we excluded patients who we have not found a dictation letter for their cases. Data was collected with assistance of the secretary department. We used the COSMICS system was used by the consultant to perform the clinic and to gain access to the patient mobile/landline number and to list the patient for surgery, and during the study to know the outcome of the clinic and whether another appointment was booked for the patient again.

PACS system was used to see previous investigations done for the patient with the documented results of these imaging techniques.ICE system was used to request investigations needed for the patient or to request ultrasound guided joint injection of local anesthetic and steroid. Case note management system was used to collect data about the outcome of previous clinics and to know whether a line of management like injection was in need for or not. We also accessed the results of nerve conduction tests from the same system.

The rules which the foot and ankle consultant followed were as follows:

1 – To check patient notes at case note management system to know everything about the patient history and lines of management that a previous consultant followed.

2 – To check results of previous investigations on the PACS system to discuss with patient.

3 – Check COSMICS and contact the patient by the methods of contact listed on the system at least 2 times by each method before dictating that the patient had not replied to the phone.

4 – If the patient was happy with the clinical outcome of previous injection, surgery or orthotics, then discharge.

5- If the patient is having a new problem not related to the previous one (ex. Patient referred for right foot hallux valgus which was corrected by a successful surgery, then the patient is having ankle pain on the other side), then the patient to be discharged to his/her general practitioner (GP) for a new referral.

6 – If the patient was unhappy about the outcome of previous injection or surgery, then we discuss with the case the next step which will be surgery. If he is not keen for surgery then discharge to GP for a new referral in the future if the patient changes his mind. If the patient is keen for surgery, we will discuss with him the co morbidities of it and when he accepts, we review him/her in another clinic which is the pre-operative assessment clinic.

7 – For all patients who need to be reviewed, we booked an appointment in the next foot and ankle clinic.

8 – Some of the patients required an additional management plan before discharging as physiotherapy, orthotics, or ultrasound guided injection. They got that.

9 – If the patient is in need for any investigation, it was requested on the system and patient was given a face to face appointment for review.

10 – If the patient did not understand English, then we requested an interpreter for him/her, and patient was given a face to face appointment for clinical review.

11 – No open appointments given as most of the patient questions could be answered by the GP by just inspecting the post-operative instructions.

12 - Patients with plantar fasciitis who were offered insoles but still in pain were offered PRP injection. If they already had PRP injection but still in pain then the next step would be shockwave therapy which is not available in our hospital, in that case we discharge the case to the GP for a referral to be made to another trust which offer this line of management.

13 – If a patient had not used the previously prescribed line of treatment due to incompliance (e.g. orthotics) then patient was discharged for a new referral by the GP except if this line was uncomfortable to the patient.

14 – Patients who are listed for surgery need to be seen in pre-operative assessment clinic, while patients listed for injection are to be discharged from the clinic; to be given an appointment 8 weeks from the date of injection.

RESULTS

Generally:

From 292 patients included in this study, eight patients were in the wrong clinic and they did not know why they had been listed for review in the elective foot and ankle clinic, from them one patient was assumed to be a face to face clinic, one patient required a referral to pediatric clinic, one patient to be referred to a dermatology clinic for Verruca Vulgaris in plantar aspect of foot, and five patients to be referred to elective knee and shoulder clinics instead of the foot and ankle one . Range of age of patients was from 11 to 90 years of age (mean=57). Table 1 illustrated the number of patients in each one of the six telephone clinic run by the foot and ankle consultant. 167 were females (57.1%), while 125 were males (42.8%). 184 patients were contacted by mobile phones (63%), 41 patients (14%) were contacted by landline, and unfortunately 67 patients (22.9%) have not picked the phone.

The reason why these patients were listed for the clinic follow up, most of the patients were in the wait and see category (n=167 from 292 (57%). From an overall of 184 patients who replied to mobile phones, 109 patients were wait and see, 45 patients had previous surgery, and 30 patients had previous joint injections. From the 41 patients who replied to he landline, 19 patients were wait and see follow ups, and from the 67 patients who had not picked the phone, 39 patients were wait and see (Table 2).

Regarding the outcome (Table 3), from the 292 patients, 232 (79.4%) patients were discharged whether for successful treatment or refusing surgery or they were offered physiotherapy or orthotics. From the discharged patients, one patient requested to be seen face to face by emailing the secretary and eight patients were in the wrong clinic. 40 patients (13.7%) were listed for being reviewed in the clinic face to face with the consultant due to various reasons. 12 patients were listed for surgery (4.1%) and listed to be seen in the pre-operative assessment clinic by the same consultant, and 8 patients (2.7%) were listed for having PRP/local anesthetic/ steroid injection.

Three group classification:

We classified patients in this study to three groups, the first group which has not responded to neither the mobile nor the landline phone numbers in COSMICS system. The second group was those who replied to the mobile phone and the third group was those who replied to the landline number.

1 – The group who has not replied to whether the mobile or landline numbers *(Table 3).*

67 patients have not replied to our calls although they got an appointment for the clinic and they should have been waiting at the time mentioned in their letter for the call from the consultant. 65 of them were discharged assuming that they are well and are not in need for the surgical help. One case called secretary requesting to be seen by the consultant at clinic, while another case was listed for review in clinic with an MRI scan requested for her although he/she had not replied to the call (presented with left ankle degenerative changes after open reduction and internal fixation; as she might be a candidate for fusion/replacement). Nine patients had previous joint injections while 19 patients had previous surgeries.

2- The group contacted by mobile phone *(Table 3).*

184 patients were contacted by mobile phones; from them 30 patients had previous injections and 45 patients had previous surgery.

Table 1: Illustrates the number and sex of cases in each one of the nine clinics

Clinic date	All day /afternoon	Total number of cases	Males	Females
12/11/2018	All day	38	16	22
14/11/2018	All day	33	14	19
3/12/2018	afternoon	8	1	7
5/12/2018	afternoon	18	10	8
14/03/2019	All day	48	26	22
15/3/2019	All day	19	8	11
30/4/2019	All day	45	20	25
7/5/2019	All day	47	15	32
8/5/2019	All day	36	15	21

Table 2: Reason for Follow up from last clinic appointment

	Replied to mobile phone	Replied to Home phone	Had not replied
Total number	184	41	67
Had Injection	30	5	9
Had Surgery	45	17	19
Wait and see follow up	109	19	39

Table 3: Cases contacted by mobile phone, landline, and failed to contact and the outcome of the clinic (discharge, review in clinic, and listing for surgery or injection)

		Previous surgery	Previous injection	discharged	Listed for injection	Listed for surgery	Review in clinic
Not replied(n=67)		19	9	65 + 1 contacted secretary and requested to be seen)			2
Replied to mobile(n=184)	By themselves(178)	30	45	121 + 1 patient wrong clinic	13	9	28
	By another person(6)			5			1
Replied to landline(n=41)	Replied to home telephone(35)	17	5	23	2	2	8
	Work telephone(3)			3			
	Another person replied(3)			1			2

A – The group who replied to the phone by themselves involved 178 patients as follows:

1 – 121 patients were discharged from the clinic and none of them returned back, 15 of them had previous injections of PRP or local anesthetic and steroid into the joints, while 33 had previous surgeries.

2 – Six patients were discharged in addition to physiotherapy/orthotics.

3 – Nine patients were listed for surgery and review in another clinic (pre-operative assessment clinic).

4 – 13 patients listed for injection and discharge from the clinic.

5- 28 patients were booked a face to face appointment in the clinic for clinical assessment.

6 - One patient in the wrong clinic discharged.

B - Six patients contacted by mobile phone but another person replied as follows:

1 – Three patients were kids and mum replied (their symptoms had settled down and no review needed so discharged).

2 –One case son replied as they were from Romania and his mum did not understand English, she was well so discharged.

3 – One case daughter replied and they did not understand English so an interpreter was organized and a face to face appointment in the clinic was booked.

4 – One case his wife replied as he was deaf discharged due to resolution of symptoms.

3 – The group of patients who replied to a landline telephone (n=41) *(Table 3)*:

From these 41 cases, 17 cases had previous surgery and 5 patients had previous injections.

1 – 35 cases replied to the home telephone number (23 cases discharged, two cases listed for surgery and eight cases to be reviewed in the clinic and two patients listed for injection and discharged in the same time).

2 –three cases replied to the work telephone number and all were discharged.

3 – In three patients another person replied (twowere the mother of a kid and another was the husband of a wife is not speaking English).

DISCUSSION

In this study, we found that the virtual foot and ankle clinic for follow up of cases was successful in allocating five patients to the correct clinic; so avoiding the long time of wait till getting a wrong appointment with all consequences of patient dissatisfaction, case deterioration, and missing the chance of offering the early surgical intervention which might not be possible with the long deterioration. From all the 292 cases only 67 cases (23%) had not picked the phone, the consultant discharged 66 of them assuming that they are well and requested an MRI scan for the last one patient and booked her a face to face appointment. One of the 66 discharged patients emailed the secretary requesting an appointment to see the consultant. From the other cases who replied whether to the mobile phone or the land line (n=167 cases (74.2%) were discharged whether alone or with referral to appliances/ physiotherapy. None of these patients discharged after the call had requested to be seen again face to face. This reflect how effective is the telephone call with the health care provider and the only issues (which was very minimal in our study) arise when patients miss the appointment.

Several studies have shown significant cost savings can be made through the use of virtual clinics [5]. In addition, the use of virtual clinics has been shown to significantly improve waiting times for first clinical review especially in foot and ankle fracture cases [6,7]. With the growing interest in the balance between developing safe and robust patient pathways whilst reducing costs, there is a balance to be struck between cost savings on the one hand and safe effective care on the other. Therefore, there has been an interest towards virtual clinics in other specialties to try to reduce healthcare costs and provide patients with a more streamlined service [8-10].

In Glasgow, they looked at patient satisfaction, but not functional outcomes following radial head stable fractures and fifth metatarsal fractures managed by a virtual fracture clinic. They had a 63% response rate with 79% satisfaction rate [11,12]. Patients who had foot and ankle chronic problems are often in significant discomfort, find walking difficult, are unable to drive and rely on either public transport or friends and family to be able to attend clinic appointments. That is why running

a virtual clinic in these category of patients would be both cost effective and with high satisfaction rate. From our study we reported some benefits and drawbacks from running a virtual elective clinic in elective follow up foot and ankle cases.

Benefits of running the telephone clinic that we found from our study:

1 – decrease the waiting time for patients to be listed for a clinic appointment and decrease the risk of missing appointments due to uneven reasons like patient sickness, work circumstances making him/her unable to take a leave for being seen in the clinic, or due weather or public transport circumstances that could prevent his/her attendance.

2 – In the regular clinic, a consultant can see an average of 12 elective cases. In the telephone clinic the number of cases was 20-50 cases per clinic so approximately double the usual number. This is expected to decrease the NHS costs and add more patient satisfaction by lessening the burden over the busy waiting lists that can reach 3-6 months till the patient see his health care provider.

3- Avoiding cases of wrong referral that we might see in the conventional foot and ankle clinic as shoulder or hip cases. This can save the physician's time and also avoid wasting patient's time till being seen in a wrong clinic then referred back to GP who will arrange another appointment in the correct clinic which will take more waiting time and more pain and deterioration of the condition.

4 – Avoiding patients to be seen in two clinics if the need surgery. As in this occasion the patient will be reviewed only one time in the pre-operative assessment clinic.

5 - Giving patient the needed time to think if they need surgery in the future and offering their clinic slot to other patients in significant symptoms who are keen for surgery. This is for important as a part of allocating the human resources for the higher priority cases.

6 – Some patients may get an appointment in 2-3 months only to meet a health care provider to discuss the normal results of their requested investigations as MRI or Ultrasound scans for example. In this case only patient reassurance is needed.

The drawbacks of the telephone clinic that we found from our study:

1 – It would be suitable only for follow up elective patients but not for new patients who need to be reviewed in a face to face appointment.

2 – If patient does not understand English then we have to arrange another appointment for him to be seen in clinic with an interpreter. These regulations are missed in the study we did and we think it might have caused some time wasting for the health care provider.

3 – Poor line problems may cause the conversation to be unclear in some occasions.

4 – If the follow up appointment is for patient review together with X-rays, so telephone clinic will be useless in these cases (ex. Ankle replacement cases usually require x rays at 2 weeks, 6 weeks, 3 months, 6 months, 1 year, and 3 years. So calling them in the 1-year appointment will not be an acceptable method of patient review).

5 – Some patient data may be outdated in the system. In this occasion the patient may receive a reminder letter to his home address then wait for the consultation which will not happen only because his contact details (phone number) are outdated.

6 – Patient may not get the reminder letter by post.

7 -Some patients will prefer a formal face-face clinical assessment and may be unhappy at this not being routine. We picked this up in only two cases in our study. One case was contacted and requested face to face appointment with the consultant who offered her that, and another case had not picked the phone but emailed the secretary after that with the need to be reviewed in the traditional clinic and the consultant agreed as well.

Recommendations from our study to increase the efficacy of the virtual telephone clinics:

1 - A cost analysis to be performed in collaboration with the hospital finance department to calculate the estimated costs associated with our virtual foot and ankle clinic in comparison to the traditional model that had preceded it.

2 – Contacting patients by consultant secretary before the proposed time of the virtual clinic to make sure that they have received the reminder letter and to ask them about the best method of contacting them, if no reply, then their GP to be contacted to update our information about the patient contact details. Also to make sure that patients are aware that not picking the phone to reply to the consultant will be considered as missed appointment and the consultant will assume they are not having current aggressive complaints and might discharge them.

3- Messaging patients 30 minutes before the consultant call to alert them about the appointment. The median age in our study was 58 years, so some mental health issues may play a role in forgetting the appointment rather than neglecting it.

4 –We recommend that patient satisfaction scores to be collected prospectively as part of the dictation letter and to clearly ask patients: are you satisfied with this service or you would like another face to face appointment for more discussion?

CONCLUSION

Our study supports the use of virtual telephone clinic in the follow up of elective foot and ankle cases. This not only because of decreasing the waiting list for clinics, but also due to its more easiness for patients who can be safely contacted without face to face appointment. In addition to its cost effectiveness to the NHS; as the heath care provider can contact approximately double the number of patients who are to be reviewed in the regular clinic. We recommend implementation of this service in all other units of trauma and orthopaedics and advise contacting patients two times before the formal physician contact to take notes about the most convenient method for contact and to alert the patient 30 minutes about the expected time of call. Senior supervision is needed to ensure safety of the virtual clinic.

Level of Evidence

Level 3 - Retrospective Cohort Study.

Conflicts of interest

The authors declare no conflicts of interest.

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None.

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