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TELEMEDICINE IN THE MANAGEMENT OF UROLOGIC ONCOLOGY PATIENTS: LESSONS FROM THE COVID-19 ERA

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ABSTRACT

PURPOSE: This study examined and compared uro-oncologic outpatient telemedicine (TM) and in person assessment during COVID-19 pandemic.

METHODS: We retrospectively reviewed the medical records of uro-oncologic outpatients treated in our hospital during the COVID-19 pandemic, from June 3rd, 2020, to December 30th, 2020. Patients were evaluated for a single urologist in both pre and postoperative assessment.

RESULTS: 869 urological outpatients were evaluated in this period, while 193 (22%) through TM modality. The majority was man (n=747; 85.9%, p=0.002), with prostate cancer disease (n=544; 62.6%, p<0.001) at posttreatment follow-up (n=673; 77.4%, p<0.001). Faults were higher at in-person assessment (12.8% vs 7.2%, p=0.035).

CONCLUSIONS: Telemedicine emerges as a substitute for traditional clinic visits and its expansion will allow ease of access for health services. Our study provides insights into the efficacy of postoperative care offered through TM.

Keywords: Telemedicine; Teleheatlh; Oncology

INTRODUCTION

The emergence of the COVID-19 pandemic in 2019 triggered a global and swift crisis in the healthcare system, placing a significant burden on hospitals and fundamentally altering the routines of many healthcare professionals (1).

Despite this unstable and challenging period, urologists continue to be tasked with providing specialized care to patients in need, while simultaneously striving to protect these individuals from potential COVID-19 contamination.

Considering the profile of patients requiring uro-oncologic consultations, the concern about the possibility of COVID-19 contamination becomes relevant, given the advanced age and male predominance in this group (2,3). Consequently, and considering the imperative need to reduce unnecessary interactions, safeguard patients, and alleviate the burden on already overloaded hospital services, the strategy of avoiding in-person consultations was adopted, aiming to minimize the necessity for patients to travel to hospital services.

In an effort to explore new approaches to maintain effective patient connections without the obligation of in-person contact, Telemedicine (TM) has emerged as a powerful tool to increase access to health care, whether in prevention, diagnosis, or treatment, enabling democratization of access by integrating remote areas with health services located in reference centers (4).

With the advent of the Covid-19 pandemic, the practice was finally regulated in Brazil (5), allowing a decrease in outpatients, reducing close contact, and the chance of virus transmission (6). TM has been widely adopted during the pandemic and has a great potential even beyond it (7).

We describe our experience with TM in the management of urologic outpatients in oncologic follow-up during the beginning of Covid-19 pandemic.

MATERIALS AND METHODS

We performed a retrospective review of the medical records of uro-oncologic outpatients treated in our hospital during the COVID-19 pandemic, from June 3rd, 2020, to December 30th, 2020. The study was approved by the institutional reviewer board and research ethics committee, with register number 50223721.7.0000.5231/2021.

The present study was conducted in a tertiary public cancer hospital with 186 hospital beds, several specialties, and daily average outpatients nearly 1000. Patients were evaluated for a single urologist in both pre and postoperative assessment. No primary care patient was seen due hospital rules.

Patients were first contacted by administrative attendants who checked if result of exams were available and solve technical difficulties. In the consultation day, they received a telephone call directly from urologist. No specific scripts or questionnaires were employed during the teleconsultations. Instead, we adhered to the standard questions routinely used in face-to-face anamnesis, which were posed over the telephone. Patients were queried about signs and symptoms pertinent to the recurrence or progression of their disease, such as bone pain, urinary difficulties, retention, hematuria, and dysuria, among others.

Following established neoplasm-specific guidelines, a comprehensive set of laboratory and imaging tests were prescribed, encompassing PSA, urinalysis, testicular tumor markers, tomography, cystoscopy, and more. These examinations were efficiently coordinated by hospital staff, ensuring patients arrived at the hospital solely on their designated day and time, bypassing the need for queues or prolonged waits.

Subsequently, the information gleaned from the teleconsultations was seamlessly integrated into the patient's electronic medical record, mirroring the protocol followed in face-to-face consultations. Prescriptions and

medical certificates were dispatched either electronically to the patient's mobile device by hospital personnel, or alternatively, they were designated for retrieval at the reception area, contingent on the patient's stated preference. Scheduling of injectable hormone therapy or chemotherapy sessions was meticulously arranged with predetermined timings, thereby mitigating prolonged waiting periods within the clinical environment. In case of emergency demands, patients were routinely advised to promptly visit the hospital's 24/7 emergency room for immediate and comprehensive care.

Data collected were about age, gender, distance to the hospital, diagnosis of neoplasm, and difficulties (lack of laboratory and imaging exams, unsuccess phone call). Both unsuccess phone call (at TM) or absence (in case of in-person scheduled appointment) were considered as fault. Conversion to in-person care (due necessity of physical examination, procedure, low understanding of process, technical difficulties, or desire of patient) were also calculated.

Statistical analyses were performed by Mann-Whitney U test, chi square test and Fisher exact test with IBM SPSS Statistics for Windows 20.0.0 (Armonk, NY, USA).

RESULTS

A total of 869 urological outpatients were evaluated in this period, while 193 (22%) through TM modality. The median age was higher in TM patients (73 vs 71, p=0.005), ranging from 18 to 94 years. The majority was man (n=747; 85.9%, p=0.002), with prostate cancer disease (n=544; 62.6%, p<0.001) at posttreatment follow-up (n=673; 77.4%, p<0.001). There was no difference between median distance from residence to hospital (73 vs 65 km, p=0.167), with the farthest living 242 km from hospital, as presented in Table 1. There were also no differences between lack of laboratory or imaging exams in both groups. Faults were higher at in-person assessment (12.8% vs 7.2%, p=0.035) as shown at Table 2.

Unsuccessful phone call was observed in 14 (7.2%) assessment, 2 (14.3%) of these were not found at home, 8 (57.1%) not answered the phone call and 4 (28.6%) due technical problems. Conversion to in-person care were needed in 9 (4.7%) patients, due to necessity of physical examination (2; 11.8%) or procedure (6; 88.2%). Just one (11.1%) of these patients desired to change to in-person assessment, as related in Table 3.

DISCUSSION

Due to the need for social and physical distancing for patients, TM emerges as a crucial tool to safeguard the health of oncology patients and healthcare professionals (8). Telemedicine is a remote clinical assistance tool, serving as diagnosis or monitoring diseases (7). In pandemic period, urologists were rapidly challenged to adopt telemedicine in face to provide health care for as many patients as possible (9).

Telemedicine can be implemented through various modalities, encompassing video conferences, mobile applications, and telephone conversations, in addition to the utilization of advanced technologies such as 5G (1,10). We believe that the best way to contact a patient is through the easiest method available for them. Video calls, e-mails, mobile applications, teleconferencing, or specific software are other prominent tools suitable for specific populations (6). In our study, patients were contacted by telephone call. This option was made because substantial part of them do not have access to a quality Internet connection. Furthermore, elderly patients are not familiar with the newest technology (1).

Video consultation involves a live, face-to-face transmission, fostering audio-visual interaction between healthcare professionals and patients. Despite the absence of tactile contact, video consultation proves to be a viable alternative to traditional

Table 1 – Baseline characteristics

	In person n = 676 (78%)	Telemedicine n = 193 (22%)	P
Age, yr, median (IQR)	71 (57 – 85)	73 (61 – 88)	**0.005**[c]
Gender			
Fale	568 (84.1%)	179 (92.7%)	**0.002**[a]
Female	107 (15.9%)	14 (7.3%)	
Diagnosis			
Prostate cancer	390 (57.9%)	154 (79.8%)	**<0.001**[a]
Bladder cancer	106 (15.7%)	15 (7.8%)	
Kidney cancer	71 (10.5%)	12 (6.2%)	
Testicular cancer	23 (3.4%)	1 (0.5%)	
Penile cancer	6 (0.9%)	0 (0%)	
Other	78 (11.6%)	11 (5.7%)	
Reason			
Pretreatment	177 (26.3%)	17 (8.8%)	**<0.001**[a]
Posttreatment	497 (73.7%)	176 (91.2%)	
Distance, km, median (IQR)	73 (20 – 121)	65 (20 – 107)	**0.167**[c]

IQR = interquartile range

Data are expressed as absolute number (%) unless otherwise indicated.

[a]Chi-Square test [b]t-student test [c]Mann-Whitney U test [d]Fisher exact test

visits when employed correctly. This tool overcomes geographical limitations, establishing an effective connection between patients and distant clinics. Studies reveal that, when conducting satisfaction surveys following teleconsultations, over 80% of patients and urologists positively rated video communication. Furthermore, the adoption of this technology can significantly reduce costs and time associated with physical travel for in-person consultations (10,11).

Most of the baseline characteristics are presented with statistical difference between groups. Despite the median age being very close (71 vs 73), the difference between the randomly selected value of In person and TM populations is big enough to be statistically significant (p=0.005). It happened in the context of pandemic period, when the older patients were left at home, while the younger patients could go to the hospital. Most patients were man, especially because most part of the participants were being treated of prostate cancer at a uro-oncology facility, which proved to be similar to other studies (8). Nourian et al. describing their 5-year experience with TM, presented most participants as man and treating prostate related disease (12).

The follow-up procedures for urological cancers are firmly established in the literature, simplifying adherence to established protocols. Additionally, laboratory analyses and imaging studies constitute pivotal elements in this approach, surpassing the significance of in-person physical examinations. In cases of prostate cancer, PSA measurement stands as the foremost tool for assessing recurrence and determining subsequent therapeutic interventions. Monitoring of bladder tumors involves urotomography, cystoscopy, and urine analysis, whereas for testicular tu-

Table 2 – Difficulties observed during In Person and Telemedicine assessment

	In person n = 676 (78%)	Telemedicine n = 193 (22%)	p
Lack of laboratory exams	28 (4.1%)	12 (6.2%)	0.242[d]
Lack of imaging exams	23 (3.9%)	3 (1.6%)	0.234[d]
Absence or Unsuccessful phone call	86 (12.8%)	14 (7.2%)	**0.035**[d]

Data are expressed as absolute number (%) unless otherwise indicated.
[d]Fisher exact test

Table 3 – Unsuccessful phone call and need for conversion during Telemedicine assessment

	n = 193
Unsuccessful phone call	14 (7.2%)
Not found at home	2 (14.3%)
Not answered phone call	8 (57.1%)
Technical problems	4 (28.6%)
Need for conversion	9 (4.7%)
Physical examination	2 (22.2%)
Procedure	6 (66.7%)
Desire of patient	1 (11.1%)

Data are expressed as absolute number (%)

mors, tomography and tumor markers are employed, amenable to seamless integration within a telemedicine framework (13–18).

Although one of the most interesting advantages of TM being access distant patients, our data on patient to hospital distance did not support it. In fact, the main reason to start our TM program was to protect patients against COVID-19 exposition and its complications, as seen in many other papers (4,7,19). So, even patients who lived near the hospital were accepted in the program.

One common issue regard to the assessment is the absenteeism and our data suggests that TM had lower rates of it (12.8% vs 7.2%, p=0,035). Nonetheless, it might be thoroughly analyzed. First, the world was in a pre-COVID-19-vaccine period and many patients opted to stay at home. Second, it is common to expect absenteeism in this population, largely elders, help and transport dependent. Third, TM patients were previously contacted by administrative attendants who checked if result of exams were available and solve technical difficulties, what clearly could improve de rate of success in TM assessments.

A limitation of telemedicine is the lack of conventional physical examination, which is particularly important in the first assessment (1,20). Nonetheless, this modality is particularly feasible in the follow-up of urological neoplasms, which have well-established guidelines. In our work, only 9 (4.7%) required conversion to in person consultation, 2 of these for physical examination, which lately proved to be just hydrocele. We opted to transition to an in-person consultation to conduct both a physical examination and an ultrasound assessment concurrently. This decision was motivated by concerns regarding

the potential for neoplastic recurrence or surgical complications arising post-prostatectomy. Subsequent verification of a benign pathology led these patients to opt for a subsequent TM follow-up consultation for ongoing neoplasm monitoring.

Despite the convenience of telemedicine, the long-term urological outcomes are not clear and need further studies. However, quality of care is likely to be at least not inferior for patients managed this way. Both patients and physicians, with emergence of telemedicine and acquired experience, soon will discover new opportunities of remote heath care.

CONCLUSION

Telemedicine can serve as a substitute for traditional clinic appointments, and its widespread adoption can act as a facilitator for accessing healthcare services. It carries a high acceptance risk from both patients and healthcare professionals. Additionally, its cost-reducing capability is a significant incentive for clinics and hospitals to embrace this new technology as a precursor for new consultations or patient follow-ups. However, telemedicine comes with its own limitations, requiring caution in its implementation. Patient data privacy must be respected, and health protocols should be rigorously adhered to. Thus, our study provides insights into the effectiveness of telemedicine in monitoring uro-oncological patients. Other urological conditions, despite oncology, might be target of new studies.

CONFLICT OF INTEREST

None

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