Telemedicine in Orthopaedic Oncology During the COVID-19 Pandemic: An Assessment of Patient Satisfaction

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Introduction

• Telemedicine provides the capability to deliver remote healthcare to patients
• The unprecedented emergence of the COVID-19 pandemic in March 2020 forced many institutions to expedite the implementation of telemedicine services to facilitate continued patient care at a distance

Objective

• To determine the patient satisfaction of telemedicine for outpatient clinic visits during the COVID-19 pandemic in a university-based orthopaedic oncology practice

Study Design

• Telemedicine outpatient visits from March 1 to June 1
• Telephone survey from June 1-15 by research personnel
• 93 patients identified (71 reached)
• 64 patients (90%) agreed to participate

Patient Cohort

Table 1. Patient Demographics

<table>
<thead>
<tr>
<th>No. of Patients</th>
<th>64 (100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Age (Range)</td>
<td>58 (7-88)</td>
</tr>
<tr>
<td>Male</td>
<td>32 (50)</td>
</tr>
<tr>
<td>Female</td>
<td>32 (50)</td>
</tr>
<tr>
<td>Diagnosis</td>
<td></td>
</tr>
<tr>
<td>Bone Sarcoma</td>
<td>19 (16)</td>
</tr>
<tr>
<td>Soft Tissue Sarcoma</td>
<td>15 (23)</td>
</tr>
<tr>
<td>Bone Metastases</td>
<td>19 (29)</td>
</tr>
<tr>
<td>Non-Sarcoma Cancer</td>
<td>10 (16)</td>
</tr>
<tr>
<td>Other</td>
<td>10 (16)</td>
</tr>
<tr>
<td>Median distance in miles of home from VUMC (range)</td>
<td>108 (9-706)</td>
</tr>
<tr>
<td>Median driving time in minutes to VUMC (range)</td>
<td>107 (14-600)</td>
</tr>
<tr>
<td>Median time in minutes had to take away from work/school for telemedicine visit (range)</td>
<td>60 (0-480)</td>
</tr>
</tbody>
</table>

Appointment Type

| New Patient | 12 (19) |
| Follow up (cancer) | 20 (31) |
| Follow up (not cancer) | 9 (14) |
| Post-op (within 90 days) | 23 (36) |

Electronic Medium

| Computer | 16 (25) |
| Phone    | 45 (70) |
| Tablet   | 34 (5)  |

Survey Results

How satisfied were you with:

- Likert scale: Very Dissatisfied (VD), Dissatisfied (D), Neutral (N), Satisfied (S), Very Satisfied (VS)
- **Median score reported in green**
- Median likert score for all 12 questions = VS

1. The length of time (# of days/weeks) you waited to be seen after scheduling your telemedicine visit? VS
2. The instruction you received prior to logging into your visit? VS
3. The actual login process on My Health at Vanderbilt? VS
4. The length of time you waited for the specialist after logging into your visit? VS
5. The audio quality? VS
6. The visual quality? VS
7. The length of time the specialist spent with you? VS
8. How well your privacy was respected? VS
9. The explanation of your condition and treatment by the specialist? VS
10. How well the specialist answered your questions? VS
11. The thoroughness and skillfulness of the specialist? VS
12. Your overall experience with your telemedicine visit? VS

Yes/No:

1. Would you use telemedicine again? Yes, 94%
2. If we weren’t in a pandemic, would this affect your current opinion on using telemedicine? Yes, 11%
3. Would you be able to do this telemedicine visit while at work? Yes, 64%

Open Ended:

1. Could anything have been improved during your visit? Yes, 25%
2. What was the best aspect of using telemedicine for your visit? “Convenience”, 78%
3. Can you foresee a scenario in which you would prefer an in-office visit over telemedicine? Yes, 69%
4. If bad or unexpected news was to be delivered during your visit, would you have a preference whether this is done over telemedicine or in an in-office visit? Yes, 38%
5. If you had to pay for your telemedicine visit out of pocket, how much would you be willing to pay for it? Most common response = $15-50 (copay)

7 patients would pay > $100

Head-to-Head Comparison:

Compared to an in-office visit, your telemedicine visit was Better (B), Same (S) or Worse (W), in regards to...

<table>
<thead>
<tr>
<th>Convenience</th>
<th>Time</th>
<th>Privacy</th>
<th>Assessment of condition</th>
<th>Overall quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>80% B, 16% S, 4% W</td>
<td>77% B, 23% S, 0% W</td>
<td>30% B, 67% S, 3% W</td>
<td>17% B, 67% S, 16% W</td>
<td>23% B, 69% S, 8% W</td>
</tr>
</tbody>
</table>

Head-to-Head Comparison Analysis

Better/Same/Worse responses were analyzed by 6 covariate groups:
- Age (under 50 vs. over 50)
- Gender (Male vs. Female)
- Diagnosis (Cancer vs. Not cancer)
- Distance (Under 100 miles vs. Over 100 miles)
- Electronic medium (Computer/tablet vs. Phone)
- Type of Visit (New Patient vs. Follow-Up vs. Post-op)

Convenience and Time: no difference by groups

Privacy
- Patients under 50 years old had a greater proportion of Better responses 50% (8/16) vs. 23% (11/48), P = 0.03
- New patients had a greater proportion of Better responses 58% (7/12) vs. 28% (8/29) vs. 17% (4/23), P = 0.04

Assessment of condition
- Post-op patients had a greater proportion of Worse responses 26% (6/23) vs. 10% (4/41), P = 0.05

Overall quality
- Patients over 50 years old had greater proportion of Worse responses 10% (5/48) vs. 0% (0/16), P = 0.07

Other Results

Audio/Visual problem?
- 89% None
- Can you foresee a scenario in which you prefer an in-office visit over telemedicine?
  1. Non-cancer diagnosis more likely than a cancer diagnosis: 83% (24/29) vs. 57% (20/35), P = 0.03
  2. Post-operative patients compared to all other patients: 87% (20/23) vs. 58% (24/41), P = 0.04

Time Comparison?
- Mean telemedicine visit time = 40 mins
- Mean estimated in-office visit time (includes travel) = 5 hrs

Key Takeaways

CURRENT PROBLEM:
- There is a need to better understand the patient perception and satisfaction level of telemedicine visits in an orthopaedic oncology practice

WHAT THIS STUDY ADDS:
- Patient opinions are quite favorable, with convenience and time being the greatest perceived advantages of telemedicine
- 84% of patients reported telemedicine visits as the same or better than in-office visits with regards to convenience, time, privacy, assessment of condition and overall quality
- Physical assessment of condition was the most common reported need for improvement, namely by immediate post-operative patients

FUTURE DIRECTION:
- A standardized telemedicine musculoskeletal exam for orthopaedic oncology patients may be useful to improve the assessment of physical condition in specific situations
  - new soft tissue mass exam
  - local surveillance exam
  - post-op wound exam

Disclosures

The authors have no actual or potential conflicts of interest to disclose related to this work.

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