Cover Letter

Title: Effectiveness of a Patient Centered Mobile Engagement Tool after Total Joint Arthroplasty

Date Effective: January 19, 2017

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Sponsor: Department of Orthopedics

Introduction

Orthopedic surgeons work with a highly motivated group of patients that are particularly active in their recovery after surgery. As our ability to complete surgeries in an arthroscopic manner has increased, post-operative rehabilitation has become increasingly important. Unfortunately, rehabilitation can be extraordinary complex and difficult for patients to understand. In addition, as patient volume has increased, office visits are less frequent and are often separated by several weeks. During those times, patients have reported that they have poor access to their physician and are often confused about the best way to rehab even if they have close follow-up with a physical therapist.

This problem is exacerbated when patient retain only a small amount of information at their office visits. We have seen patients present to their follow-up appointments without attempting any of their recommended home exercises. At the present time, orthopedic surgeons deliver important post-operative instructions at an inopportune time when patients are recovering from anesthesia. The caregiver accompanying the patient may or may not understand the patient's diagnosis. This is especially true following same-day outpatient orthopedic surgery. When patients are discharged and need additional information about their postoperative care, they search online for information. This may cause them to follow instructions for the wrong condition (misunderstanding their diagnosis) or follow recommendations that are not verified by their individual provider.

At the present time, our offices are using outdated communication methods in an age of new technology that include text messaging, smart-phone apps, and social media. Multiple surveys have reported that patients would actually prefer digital communication from their provider. Moreover, physicians have expressed that "professional burnout" is related to excessive paperwork and generalized office inefficiencies. The best available electronic communication is email, but this becomes overbearing for office staff and patients usually have the same predictable questions. Typically, we can predict what types of questions patients will have at their respective time point after surgery.

There has been a recent surge in the development of electronic patient engagement platforms. These new technologies aim to provide patients with a new form of digital communication and optimize our delivery of healthcare information. These digital communication tools are designed to increase patient activation and promote positive patient behavior. There have been a small number of scientific studies that support their efficacy. The reported data suggests that health text messaging is a convenient way for patients to receive information, allows timely distribution of information, increases patient compliance, improves patient outcomes (medication adherence, decrease surgical infections with antiseptic showers), and can reach a large patient population, including those who are socioeconomically isolated.

This has led us to develop our proposed study, which implements an automated unidirectional electronic patient engagement tool that sends patients diagnosis and treatment specific information at the appropriate time to maximize patient outcomes. The program relies on specific SMS text messages that are less than 160 characters; packaged with instructional videos that are less than 30 seconds which demonstrate key points and proper technique for home exercises. The utility of the program is that it anticipates the most common reasons for non-compliance or readmissions in the early (<12 weeks) postoperative period and sends SMS messages to guide patients through this difficult time and prevent additional communication to the office staff and physician. We expect that the results of this study help us understand the utility of text messaging patient instructions in the postoperative period.

Study Rationale

The effect of a digital patient engagement platform will be assessed as it pertains to the improvement in postoperative knee range of motion, office staff efficiency, and patient satisfaction following total joint arthroplasty (TJA) in the form of a total knee arthroplasty (TKA) or total hip arthroplasty (THA).

Hypothesis

The hypothesis is that following the implementation of an electronic digital patient engagement platform will improve the amount of time spent on rehabilitation activities daily, deep vein thrombosis (DVT) compliance, narcotic use, overall mood, save office staff time and resources, and improve patient satisfaction scores in a cohort of patients indicated for TKA or THA.

Study Plan

This study will be a large, prospective trial of patients undergoing TKA or THA. All patients who sign the consent will be enrolled in the study. Enrollment will continue for 150 patients, 75 in each group, where a power analysis will be performed to determine the total number to show a clinically important difference.

Enrollment Process

Patients over 18 who are determined clinically and by knee/hip radiographs to have symptomatic total joint disease, and elect to have surgery will be invited to participate in this study. Informed consent will be obtained preoperatively in the office setting. Only patients recommended to undergo TKA or THA by the treating surgeon will be offered enrollment in the study.

Eligibility

Inclusion Criteria

1. Patient scheduled to undergo a TKA or THA.
2. Written informed consent is obtained

Exclusion Criteria

1. Patients without smartphone capabilities
2. Revision surgery
3. Any patient lacking decisional capability

Study Procedures

- Eligibility - Once a patient has met the pre-operative criteria, s/he will be offered the opportunity to participate in this study.
- Patient Consent - The patient must be made fully aware of the protocol requirements and s/he must acknowledge his/her understanding and agreement by signing the informed consent and privacy statement.
- Text Messaging – 1-84messages will be sent to the patient in the initial 6-week postoperative period between the hours of 9AM and 7PM. Some messages will be associated with Internet links to instructional videos (authorized by the treating physician) for home exercises.

Timeline of Events

1. All patients will have a preoperative knee/hip radiographs.
2. Once informed consent is obtained, the patient will be provided a one-page "diary" with areas to record the amount of time spent on rehabilitation activities daily, overall mood, narcotic use, and DVT prophylaxis compliance.
3. Patients will be randomized to either the control or experimental group. The control group will receive their post-operative instructions in the usual manner. The experimental group will receive their postoperative instruction in the usual manner but will also receive the digital text messages for the initial 6-week postoperative period.
4. If the patient is randomized to the experimental group, we will obtain their preferred cell phone number and this number will be added into the postoperative texting program algorithm.
5. The patient will then undergo surgical reconstruction in the usual manner. The text-messaging program will begin on postoperative day #0.
6. Any phone call or email from patients in the control and experimental treatment groups will be recorded by the surgeon's office staff for data processing at the completion of the study.

7. The patients will present for the postoperative visits in the standard manner. At the 6-week post-operative visit, the patient will be prompted to return the completed one-page diary.
8. All patients will complete their prescribed physical therapy as determined by the surgeon. The physical therapy protocols will be identical for the control and experiment study cohorts.
9. At their 6-week postoperative visit, the experimental study cohort will be also be asked to fill out a 7 question survey to gather their feedback and satisfaction with the electronic postoperative text messaging program. There will also be a commentary section in the survey to allow them to provide any further recommendations or insight.

Benefits of Participation

There is no direct benefit to the patient for their participation in this study. The results will contribute to the improvement in postoperative care after total joint arthroplasty. The use of this type of electronic patient engagement protocol may improve their recovery and change the way we interact and deliver healthcare information to patients in the future. The study will help determine the extent to which patient enjoy receiving digital information in the postoperative period.

Alternatives to Participation

The alternative to participation in this study is not to participate. Patients who decline to participate will proceed with the recommended total joint arthroplasty, which is the current standard of care and will receive the customary or standard of care postoperative information as currently completed. They will return to the office for postoperative follow-up per the rehab protocol for the specific procedure performed.

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