A Screening Tool to Enhance Clinical Trial Participation at a Community Center Involved in a Radiation Oncology Disparities Program

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Abstract

Purpose: To investigate the effectiveness of a screening tool to enhance clinical trial participation at a community radiation oncology center involved in a National Cancer Institute–funded disparities program but lacking on-site clinical trials personnel.

Patients and Methods: The screening form was pasted to the front of the charts and filled out for all new patients over the 9-month period of the study, during which time five external beam radiation therapy (EBRT) trials and a patient perception study were open for accrual. Patient consent was obtained by assorted personnel at several different sites. Patients potentially eligible for a trial were identified and approached by one of the clinic staff. Patients who were under- or uninsured, age > 80 years, members of an racial/ethnic minority, or recipients of med-

ical assistance were identified as at risk for health care disparities and were offered patient navigator services.

Results: Of 196 patients consulted during the study, 144 were treated with EBRT. Of the 24 patients eligible for EBRT trials, 23 were approached (one had an incomplete screening form), and 15 accepted. Of 77 patients eligible for a patient perception trial, 72 were approached (five had incomplete forms), and 45 accepted. The eligibility and acceptance rates for EBRT trials were similar for disparities and nondisparities patients. Screening was completed for 96 patients (67%).

Conclusion: When completed, the screening tool ensured clinical trial accrual. The major factor limiting overall accrual was a shortage of available trials.

Introduction

Substantive progress in cancer treatment depends ultimately on patient accrual to well designed, properly conducted clinical trials. Unfortunately only 3% to 5% of patients newly diagnosed with cancer participate in clinical trials,¹ as a result of a number of real and perceived barriers.¹⁻³ In addition, only approximately half of these trials reach the designated minimum accrual numbers.⁴

Most oncology patients receive their treatment at Community Cancer Centers that reportedly accrue up to 60%⁵ of patients on trials. These community centers have also been reported to offer an inferior level of treatment in general compared with tertiary referral centers,⁶ with some exceptions.⁷ The majority of economically disadvantaged patients in the health care system, recognized generally as having inferior outcomes, are treated in community centers and are under-represented in clinical trials.⁸⁻¹³ Efforts to level the playing field for such patients and to increase their participation in clinical trials include the activities promoted by the Agency for Health Care Research and Quality, The Education Network to Advance Cancer Clinical Trials, and the Cancer Disparities Research Program (CDRP) funded by the National Cancer Institute.

The National Cancer Institute has funded programs through the CDRP in order to establish a clinical trials infrastructure in community hospitals, and to improve the accrual of patients who are economically deprived, socially disadvantaged, and/or members of racial/ethnic minorities. Initially, Jameson Hospital (New Castle, PA) was one of a consortium of five western Pennsylvania Community Radiation Oncology Cen-

ters, the Radiation Oncology Community Outreach Group (ROCOG), funded by the CDRP program.

During the initial 2 years of funding, the University of Pittsburgh Medical Center (UPMC) and its affiliated radiation oncology facilities were not members of the Radiation Therapy Oncology Group (RTOG), and there was no formal clinical trials infrastructure for radiation oncology or for the Jameson radiation oncology department. By year 3, UPMC was a member of RTOG, and a new freestanding facility, a joint venture between UPMC and Jameson (UPMC/Jameson Cancer Center), replaced the original hospital-based Jameson department. One clinical trials coordinator was available for 20 sites separated geographically by up to 90 miles from the UPMC/Jameson campus. Because the Jameson facility lacked a dedicated protocol nurse, a core staff group consisting of the radiation oncologist, oncology nurse (RN), clinic manager, and the patient navigator (PN) assumed responsibility for approaching potential clinical trial patients. In addition, a simple screening form (Table 1) was placed on the front of each patient chart in order to identify any potentially eligible patients.

Patients and Methods

All new patients at the UPMC/Jameson Cancer Center were screened for eligibility to participate in a clinical trial at the time of initial consult. Those not requiring external beam radiation therapy (EBRT) were excluded. The study was approved independently by the internal quality improvement review boards at both Jameson Memorial Hospital and UPMC.

Table 1. Clinical Trials Screening Tool

Protocol	Accept	Refuse	Not Eligible
Lung (PCI) RTOG	Yes	No	N/A
Lung implant RTOG	Yes	No	N/A
Breast RTOG	Yes	No	N/A
H-N UPCI	Yes	No	N/A
Lung ACRIN/RTOG	Yes	No	N/A
Navigator	Yes	No	N/A
Educational needs	Yes	No	N/A
Patient perception trial blinded/unblinded	Yes	No	N/A

NOTE: This form was pasted to the front of the chart for all new consults. Abbreviations: PCI, Pittsburgh Cancer Institute; RTOG, Radiation Therapy Oncology Group; H-N UPCI, XXXX XXXX University of Pittsburgh Cancer Institute; ACRIN, American College of Radiology Imaging Network.

Criteria for Identifying Patients at Risk for Disparities

Under- or uninsured status, age > 80 years, membership in a racial/ethnic minority, receipt of medical assistance, and residence in economically deprived areas have been previously identified as accepted potential criteria for at-risk status,² and we used these criteria to identify the disparities subpopulation for our study. All patients from this demographic group were approached by the PN and invited to receive help during the time from consult through the start of treatment; eligible patients were invited to consider a clinical trial.

Consenting

Potentially eligible patients were initially approached by the RN, PN, or radiation oncologist. After a preliminary discussion about the value of clinical trials in general, and the specific trial in question, interested patients were given a copy of the consent form to take home and read. Formal consent was undertaken at the next appointment. For RTOG trials, patient consent was obtained by a clinical trials RN who traveled 60 miles from Pittsburgh; for the American College of Surgeons Oncology Group (ACOSOG) patients, by a lung center RN; for the Eastern Cooperative Oncology Group (ECOG) patients, by a medical oncology RN; and for the patient perception trial participants, by UPMC/Jameson staff.

Clinical Trials

The UPMC/Jameson Cancer Center was accredited to accrue patients to five RTOG, one ACOSOG/RTOG, and one ECOG treatment trials, as well as a patient perception study¹⁵ for varying periods of time during the 9 months of the study. The patient perception study, funded by the American Society of Therapeutic Radiation Oncology, sought opinions from patients on how they would like their doctors to interact with them in the clinic.

The available EBRT trials included (1) RTOG 0525, a study of temozolomide for glioblastoma; (2) RTOG 0214, a whole-brain irradiation study for non-small-cell lung cancer; (3) RTOG 0413, a study on partial versus whole breast irradiation;

(4) ECOG 3303, a study of the role of erbitux in patients with head and neck cancer receiving concurrent chemotherapy and irradiation, and (5) ACOSOG/RTOG -Z4032, a study of the role of brachytherapy in patients with non-small-cell lung cancer with poor lung function who were treated with lung wedge resection. There were two other RTOG prostate trials open, but both used lower doses of radiation than those already in use at the center and were therefore deemed to be unsuitable for accrual. The trials were open to accrual for between 5 and 9 months.

Results

Of 196 new patients consulted during the period of study, 144 (73.5%) agreed to be treated with EBRT (Appendix Table A1, online only). Of these, 46 (32%) were at risk for disparities, and 20 (14%) chose to accept PN services. Only 64 of 196 (33%) patients were treated for cancer at an organ site, for which there was a potentially available and suitable EBRT trial. Of these, only 24 (38%) were eligible, and 23 (36%) were approached (one patient had an incomplete screening form). Of these 23, 15 (65%) accepted and consented to be enrolled onto the trial. This represented 60% of the patients entered by the five ROCOG sites during the period of study.

Of the 77 (53%) EBRT patients eligible for the patient preference trial, 72 (94%) were approached (five had incomplete screening forms) and 45 (63%) accepted. These 45 patients represented 100% of the patients recruited for this particular study by the ROCOG consortium.

The screening tool was completed satisfactorily by 96 (67%) of 144 treated patients, and none of the eligible patients was missed. Of the remaining 48 (33%) patients without completed screening forms (Appendix Table A2, online only), one patient (5%) who was potentially eligible for a clinical trial and five (7%) potentially eligible for a patient preference trial were not approached. A total of 25 (52%) unscreened patients were eligible for the patient preference trial; 20 (80%) were asked to participate and 11 (55%) accepted. Only eight (17%) of the 48 patients with incomplete forms were eligible for a treatment trial; of these, seven (15%) were asked to enter a trial and five (71%) of seven accepted. None of the eligible disparities patients with incomplete screening forms were missed.

Seven (30%) of the 23 eligible patients approached for EBRT trials and five (65%) of the 15 who accepted were designated as at risk for health care disparities (Appendix Table A3, online only). This group also represented 21% (15 of 72) of those approached for the patient perception study, but only 13% (6 of 45) of those who accepted. The percentage of economically disadvantaged patients in the cancer center "catchment" area of New Castle and surrounding Lawrence County, PA cannot be clearly identified, but up to 25% of the population subsists at or below the poverty level. Of the seven eligible disparities patients, five (71%) agreed to a treatment trial and six (40%) to the patient perception trial. Of these, three (75%) of the four patients with a PN and two (67%) of the three without a PN chose to enter a treatment trial. Of the 15 patients approached for the patient perception study, five (45%) of the

11 with a PN and one (25%) of the four without a PN chose to enroll onto the trial.

The average rate of EBRT patient clinical trial accrual per month for the five treatment trials (Appendix Table A4, online only) was 0.39 (range 0.22 to 0.67) per trial, or 8.22% (range 2.6% to 11.1%) of the eligible patients per trial. For the patient perception trial, the rates were 5% and 6.5%, respectively.

Discussion

The majority of patients with cancer, and particularly the subpopulation at risk for health care disparities in the United States, are treated in community oncology centers, which also accrue approximately 60% of patients on clinical trials.⁴ Our 10.4% percentage accrual rate for the patients entering the EBRT trials was less than the 14% reported for a prospective clinical trial accrual study by Lara et al,¹ although our acceptance rate was slightly higher: 65% versus 50% of eligible patients.

During our study, suitable clinical treatment trials were not available for 88% of the consulted and 83% of the EBRT patients, in contrast to 47% for Lara et al¹ and 60% for a study reported by Keller et al.¹⁴ Furthermore, not all the trials were open for the full 9 months. Thus the most likely factor in preventing a better accrual to treatment trials in our center was the small number (five) of appropriate clinical trials available to us during the 9-month observation period.

Clinical trials require an established institutional infrastructure to successfully recruit patients, and the associated expenses are considerable.¹⁶ Although the cost of clinical care for trial patients may not differ very much from that for non-trial patients for most cancer treatment trials,^{17,18} the administrative costs, which are difficult to estimate,^{17,18} have to be covered by reimbursement from trial organizations. On the basis of a survey by Emmanuel et al,¹⁹ the estimated costs varied according to whether the trial was industry sponsored and the type of institution conducting the trial. The nontreatment costs per participant ranged from an average of \$1,999 for an industry-sponsored trial, \$3,736 for an academic center, and \$3,916 for managed care organizations to \$1,383 for an oncology group practice. Nontreatment costs were estimated to be approximately \$2,000 per participant, but this estimate has been considered to be low because most of the data came from the oncology practice groups that reported considerably lower cost estimates.¹⁸ For example, reimbursement for RTOG varied from \$2,000 to \$5,000 per subject, and as of 2003, the NCI-reimbursed Cooperative Groups¹⁹ at between \$1,725 and \$2,125, and this had not changed as of 2010.²⁰ In the latter case, it is not clear how much of this money actually reaches the participating institutions.

We have expressed accrual rates as either the number of patients per clinical trial per month (0.39 for the EBRT trials, and 5.0 for the patient perception trial), or as the percentage of eligible patients per clinical trial per month (8.2 for the EBRT trials, and 6.5 for the patient perception trial). Although we are not aware of other studies that have performed these calculations, and are not sure whether they represent useful measures

of clinical trial accrual, it seems possible that these approaches could serve as an index for cost-efficacy studies, assessing potential accrual rates for new trials, or for comparing the efforts of facilities to accrue patients.

The ability to accurately forecast successful accrual of the requisite number of patients to a clinical trial—currently 50%⁴ do not reach their goals—should reduce the number of trials that fail to reach maturity, leading to costs savings and a reduction in wasted effort and resources. This could be achieved by accurately tracking patients who might be eligible for a clinical trial and recording the data in a registry, at least at the cooperative group level. A significant effort would be involved, but with the increasingly rapid deployment of electronic medical records this should be practicable. Suitable institutions could be identified and approached by the designers of clinical trials. In turn, institutions considering enrolling patients onto such a trial could review their own data base and determine whether the time, effort, and cost of getting a trial through an institutional review board are justified. A useful by-product of keeping track of eligibility would be the increased likelihood that more patients would be approached and accrued to trials.

The PN obtained accrual rates to EBRT trials for the small number of patients at risk for disparities that were comparable to those for the nondisparities patients. However, the role of PNs has proved to be controversial. Although their efforts are uniformly appreciated by staff and patients alike, objective measurements of their impact on patient care have proved to be extremely difficult to define,²¹ and their cost effectiveness impossible to calculate as a result. It is tempting to speculate that if they were involved with patients immediately after a diagnosis of cancer and were to navigate them through the work-up and subsequent multiple subspecialist appointments, they would become the accepted and expected support for the patient. As a result, they could become an enormously positive force in enhancing clinical trial accrual for all subsets of patients, including those at risk for disparities. This would produce cost savings and allow clinical trial nurses to concentrate on the consent process. It would be possible to test this hypothesis by retrospectively auditing previous clinical records for eligibility and acceptance rates to clinical trials. After installation of a PN, as described above, the same criteria could be analyzed to establish whether the presence of the PN increased the accrual rates and, more particularly, the acceptance rates.

A road map has been outlined, consisting of clearly defined steps toward improving clinical trial participation.^{11,12} Many of the solutions proposed in these articles, including giving patients sufficient information about clinical trials, involvement of the family, cancer screenings, town meetings, health fairs, a committed educated clinical staff, and selection of appropriate trials, are in use at the center and/or in the local community.

The cost of setting up a comprehensive infrastructure to support clinical trials in community practices is quite significant.¹⁶ No attempt has been made to calculate the expenses involved for enrolling patients onto clinical trials for this study, because the effort was mostly incorporated into existing staff

duties. Nevertheless, costs were arguably much lower than those for a conventionally funded clinical trials infrastructure.

Summary

If more patients are enrolled in a clinical trial the administrative costs per patient should go down incrementally, so any approach to maximizing accrual has merit. This involves accurately identifying eligible patients, and a screening tool, such as that described in this report, represents a partial solution, although the related efforts by key clinical staff to flag eligible patients are extremely important. There is also a need for better recruitment rates for eligible patients, and the potential role of a PN, as suggested above, could improve this aspect.

The use of multiple personnel to obtain patient consent for different trials proved to be practicable. The eligibility and accrual rates, based on small numbers for disparities, nondisparities, navigated, and non-navigated patients, were equivalent for the EBRT trials. However they were considerably lower for patients at risk for disparities who were approached for the patient perception study. Finally, a lack of suitable clinical trials available during the study period was the major limiting factor for patient accrual.

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