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Original Article

A Qualitative Study of Phase III Cancer Clinical Trial Enrollment Decision-Making: Perspectives from Adolescents, Young Adults, Caregivers, and Providers

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Purpose: The mortality reduction rate for adolescents and young adults (AYAs) with cancer has not demonstrated the same rate of improvement as for children, due partly to insufficient phase III cancer clinical trial enrollment. This study describes three key components of phase III cancer clinical trial enrollment—family decision-making patterns, factors that influence AYAs' involvement, and attitudes (perceived barriers and benefits) toward trial participation—and evaluated a measure of attitudes.
Methods: Participants were AYAs (15–23 years old at study) diagnosed with cancer and offered a phase III cancer clinical trial within the past 3–21 months, their primary caregivers, and their healthcare providers. Interviews assessed: (a) phase III clinical trial decision-making experiences and (b) relevance of the Pediatric Research Participation Questionnaire (PRPQ) in the assessment of AYAs' attitudes toward enrollment on phase III cancer clinical trials.
Results: Thirteen AYAs, 16 caregivers, and 11 providers were interviewed. Four decision-making patterns were identified, with *AYA abdicates to caregiver* and *caregiver-based and AYA-endorsed* the most commonly described, but with variation across respondents. Distress and reduced health-related quality of life limited AYAs' involvement in the enrollment decision, while developmental and emotional maturity facilitated involvement. Perceived barriers and benefits to enrollment were reported, and the PRPQ was deemed relevant with minor modifications.
Conclusions: Findings suggest that AYAs may not be fully involved in phase III cancer clinical trial enrollment decision-making, and caregivers and providers are challenged to overcome factors that limit their involvement. The PRPQ shows promise as a tool for systematically evaluating clinical trial attitudes.

Keywords: clinical trial participation, treatment decision-making, attitudes to clinical trials, perceived barriers and benefits to research

Approximately 21,400 adolescents and young adults (AYAs) aged 15 to 29 years old were diagnosed with cancer in the United States in 2000, nearly three times the rate for patients diagnosed in the first 15 years of life.[1] Although the 5-year survival and mortality reduction rates for youth with cancer have steadily improved since the 1970s, gains in the survival rate for children have been greater than the rate for adolescents.[2] Reduced participation in therapeutic or phase III clinical trials may be one reason for poorer outcomes for AYAs, as AYAs are significantly less likely to enroll than their younger counterparts.[3–6] Few empirical studies have examined the attitudes and reasons for limited participation or explored the decision-making process of AYAs and their families,[7] further exacerbating the critical quandary of how to increase AYA involvement in treatment decision-making and cancer clinical trial enrollment. Consequently, the AYA Committee of the Children's Oncology Group has designated the lack of clinical trial enrollment for this age group as a priority area for research.[8,9]

AYA developmental milestones relate to a growing sense of independence, autonomy, and control; an increased desire for self-definition or personal identity; and a heightened

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awareness of peer and romantic relationships.[10,11] For AYAs, the challenges posed by cancer significantly affect and often delay typical development milestones[12] and result in reduced health-related quality of life (HRQOL).[13–15] Regardless of their degree of autonomy pre-diagnosis, most AYAs rely on their caregivers for support,[14] particularly in relation to cancer symptom management and treatment,[16] and parents frequently play a significant role in treatment decision-making.[17,18] Reliance on parents as proxy decision-makers for AYAs with cancer often occurs in spite of the presence of an AYA's cognitive and emotional maturity, striving for increased autonomy, and willingness to participate in decision-making.[14,19]

Effective communication about cancer clinical trial enrollment may increase AYAs' understanding of their illness and the implications of treatment choices, as well as their participation in clinical trial enrollment decision-making.[20,21] Increased autonomy and general well-being are promoted when caregivers and healthcare providers incorporate AYAs' values into the decision-making process, which often differ from those of their parents and healthcare providers.[22] Understanding the decision-making experiences of AYAs and their parents and strengthening our ability to measure their attitudes toward clinical trials may improve communication by targeting AYAs' attitudes and facilitating their clinical trial enrollment.

Our study's goals were two-fold: to understand the decision-making patterns of AYAs and their parents and to evaluate the relevance of the Pediatric Research Participation Questionnaire (PRPQ)[23] to measuring attitudes toward clinical trial enrollment in AYA oncology. Most AYAs have the ability to engage responsibly in decision-making;[24] however, it is unclear how AYAs with cancer and their parents interact to make decisions about treatment through participation in phase III clinical trials. Using qualitative methods, this study sought to increase understanding of how AYAs with cancer and their caregivers make decisions about enrollment in a phase III clinical trial, using patient, caregiver, and provider perspectives about AYAs' level of involvement and factors that influence involvement.

The PRPQ identifies perceived barriers and benefits to enrollment in medical and psychosocial clinical trials at the patient, family, healthcare system, community, and societal levels, as suggested by social ecological theory. In an exploratory factor analyses,[23] results supported the factor structure of the caregiver version (direct treatment benefit, mistrust of research/researchers, trust in healthcare team, and opportunity cost [weighing of benefits vs. risks of enrollment]) and the AYA version (mistrust/no direct benefit, safety, direct benefit/practical aspects of participation such as time demands). We aimed to take the first step in adapting the PRPQ, originally developed for youths with health disparity conditions, for use with AYAs with cancer.

Methods

Participant recruitment

The study was conducted at a large cancer center of an East Coast children's hospital in the United States; the cancer center is a Children's Oncology Group institution. Patients were eligible if they were aged 15–29 years old, diagnosed with cancer, and offered treatment through a phase III clinical trial within the last 2 years; their primary caregiver(s) were also participants. Healthcare providers, who were pediatric oncologists with experience conducting informed consent/assent (i.e., diagnostic) meetings for phase III clinical trials with AYAs, were also interviewed. Eligible patients were identified through the cancer center's tumor registry and mailed a letter informing them of the study and inviting their participation. Letters were followed with telephone calls to explain the study and schedule a study interview for those who were interested in participating. Following completion of informed consent, and assent for patients under 18, interviews took place in either group (one for AYAs [$n=3$] and one for their caregivers [$n=4$]) or individual ($n=10$ AYAs, $n=12$ caregivers) formats in order to accommodate preferences for participation. Provider interviews were conducted individually. Based on concurrent analysis of qualitative data during interviews, final sample size was guided by achievement of saturation themes.[25] Of 27 eligible patients, 25 were able to be contacted, 20 scheduled interviews, 5 refused, and 13 interviews were completed (52% of those contacted). Of 21 providers contacted, 12 responded positively, and 11 (52%) completed interviews. Families received a $20 gift card for their participation; providers were not remunerated. The appropriate Institutional Review Board approved the study protocol.

Materials and measures

Review of tumor registry data and the electronic health record was used to obtain information on the AYAs' demographics, diagnoses, and treatment. Providers were asked about their years of experience post-fellowship and to estimate the number of diagnostic meetings they led in which a phase III clinical trial was offered to an AYA patient.

Interview guides provided semi-structured questions and prompts based on the pediatric clinical trial decision-making literature, the social ecological perspective, and the PRPQ in three parallel guides for AYAs, caregivers, and providers. AYAs and caregivers were asked about their experiences in the diagnostic meeting, their recollection of the family's treatment decision-making process, the extent of the AYA's involvement in the decision to enroll (or not) in a phase III clinical trial, and factors perceived to influence the AYA's involvement. Providers were asked about the structure of diagnostic meetings and factors they believe influence AYAs' involvement in enrollment decision-making. Participants were provided a copy of the PRPQ and asked to interpret each PRPQ question and comment on the perceived relevance of questions.

Data analyses

We used content analytic methods in this qualitative descriptive study to analyze participants' interview responses[26–30] based on qualitative interviews that were digitally recorded and transcribed verbatim. Atlas.ti was used to aid in data management and the development of codes, categories, and themes/subthemes. The percentage endorsed for each pattern by respondent was computed, and responses were compared by age at diagnosis (<18 or ≥ 18) and whether or not the AYA enrolled in a phase III clinical trial. To track how codes, categories, and themes were developed, we maintained an audit trail about the process of coding the qualitative data.[29] Two coders were used throughout the process to ensure reliability in coding; constant comparative methods were used with a primary coder inductively identifying themes and establishing the coding scheme and a second coder recoded using the emerging scheme.[30] The

themes/subthemes developed in the group and individual formats were found to be similarly complementary. For the PRPQ, the percentage of AYAs, caregivers, and providers endorsing the relevance of each item and a summary of suggested revisions were prepared.

Results

Participants

AYA participants ($n = 13$) ranged in age from 15 to 21 years at the time of diagnosis and were 3 to 21 months post-diagnosis at the time of the interviews. About 50% were male and approximately 50% had a diagnosis of leukemia or lymphoma (Table 1). Eight AYAs (61.5%) were still on treatment during participation in this study. Based on eligibility criteria, all 13 AYAs were offered treatment via a trial; 9 (69.2%) agreed to treatment on a phase III clinical trial, but 4 were removed from the trial before treatment completion. Sixteen caregivers (8 mothers, 2 grandmothers, and 6 fathers) of the 13 AYAs participated. For providers ($n = 11$), time since fellowship ranged from 3 to 35 years (median = 15 years); on average, they conducted 10 diagnostic meetings per year with AYAs and their caregivers. All providers endorsed directly including AYAs in diagnostic meetings.

Patterns of AYA involvement

Identified decision-making patterns varied amongst respondents (Table 2). AYAs perceived that they had either no role (38.4% *AYA abdicates to caregiver*; ''My parents made that decision. I didn't really get involved with that. They knew more than I did.'') or only a minor role (30.8% *caregiver-based and AYA-approved*; ''They came to me and made sure if I wanted to do it or not.'') in the clinical trial enrollment decision. AYAs conveyed a sense of resignation because they viewed themselves as being dependent (''If I could have done it a second time around, I would have wanted to do it [the phase III clinical trial].'') in contrast to prior collaborative, family decision-making. However, two AYAs described decision-making as *collaborative* (15.4%) and two others noted they made the decision (15.4% *AYA in charge of decision-making*; ''It's usually up to me. So if I say I'm going do it, they're like 'Okay.'''').

In contrast, the majority (43.7%) of caregivers endorsed *AYA in charge of decision-making*, while others endorsed *caregiver-based and AYA-approved* (31.3%) or *collaborative* (12.5%). Some acknowledged their primary role in the final decision (12.5% *AYA abdicates to caregiver*; ''She was not involved.''). Caregivers felt challenged to manage their own feelings of distress and to include their AYAs because of the need to understand information and make important treatment decisions quickly.

The decision-making patterns described by providers were similar to those of the other respondents, but they did not describe the *collaborative* pattern, instead endorsing either *AYA abdicates to caregiver* (36.4%; ''In some families,…[the AYA is] not going to be allowed to say anything.''), *caregiver-based and AYA-approved* (54.5%; ''The most common thing is that the parent is encouraging it [engagement] and the kid's like grumpy and doesn't want to talk or doesn't feel well.''), or *AYA in charge of decision-making* (9.1%; ''With some families the children are more likely to make the decision.''). Providers felt challenged to maintain the attention of AYAs, provide balanced information while minimizing coercion, and to understand and respond to pre-existing family structures, decision-making patterns, and behavioral issues in the context of diagnostic meetings.

Factors that influence AYA involvement in the phase III clinical trial enrollment decision

Several themes emerged regarding factors that most influenced AYAs' involvement in decision-making (Table 3) that were consistent across respondents and subgroups. Primary limiting factors were *acute stress/distress* (AYA: ''In the beginning, I was really shocked as everything was going on.'') and *physical illness/reduced HRQOL* (provider: ''Oftentimes, the family meetings are being done without the kids because the kids feel terrible.''). Factors noted to facilitate involvement included *developmental maturity: cognition* and *emotional maturity: autonomy* (caregiver: ''If you can drive, you should be able to say okay [to clinical trial enrollment];'' provider: ''The kids that are already kind of dependent on their parents for everything just continue to be dependent on their parents for everything.'').

Additional decision-making themes

A number of perceived benefits and barriers to enrollment in a phase III clinical trial were identified (Table 4). All three respondent groups identified that barriers to enrollment were the requirement of *additional procedures*

Table 1. Demographics of AYA Participants ($N = 13$)

Variables	n	*Range*
Age at interview (years), *M* (SD)	17.54 (1.94)	15–23
Age at diagnosis (years), *M* (SD)	16.54 (1.56)	15–21
Time since diagnosis (months), *M* (SD)	11.62 (5.85)	3–21
Gender = male	6 (46.2%)	
Ethnicity		
Not Hispanic or Latino	11 (84.6%)	
Hispanic or Latino	2 (15.4%)	
Race		
White	10 (76.9%)	
Black or African American	1 (7.7%)	
Other	2 (15.4%)	
Diagnosis		
Rhabdomyosarcoma	2 (15.4%)	
Osteosarcoma	5 (38.5%)	
Acute lymphoblastic leukemia	3 (23.1%)	
Acute promyeloctic leukemia	2 (15.4%)	
Non-Hodgkin lymphoma	1 (7.6%)	
Enrolled in phase III clinical trial	9 (69.2%)	
Removed from phase III clinical trial	4 (30.8%)[a]	
On active treatment at time of interview	8 (61.5%)	

[a]Of the 9 that enrolled, reasons for removal: adverse event (2), patient withdrawal (1), study closure (1).

AYA, adolescent and young adult; *M*, mean; SD, standard deviation.

Table 2. Illustrative Quotes About Patterns of AYAs' Involvement in the Phase III Cancer Clinical Trial Decision-Making Process

Theme/pattern	*Example quotes (% of each category of respondents with similar responses)*
AYA abdicates to caregiver	AYAs (38.4%): ''Mostly my mom would talk to me and I would just be like, 'Whatever you think is best.''' Caregivers (12.5%): ''She wanted to refuse treatment…but you have to give the best shot you can to keep it from coming back. To be honest, she doesn't really have [autonomy].'' ''Even if she could have legally made the decision on her own, she trusts our judgment and would have done what we thought was in her best interest anyway.'' Providers (36.4%): ''In some families, they're not going be allowed to say anything and their parents are going make them do whatever they want no matter what.'' ''On the simplest level…parents want a particular thing to happen and they just make it happen. The kid will be like 'I am not sure I want this,' and parents say 'This is what we are going to do.''''
Caregiver-based and AYA-approved	AYAs (30.8%): ''My parents were there too and…They said, 'You should do it because the doctor said it was good.' I'm like, 'Okay.''' Caregivers (31.3%): ''I used my best knowledge, my best ability, and also I discussed with [my AYA patient] what may be the best options. That helped me decide about her treatment.'' Providers (54.5%): ''The most common thing is that the parent is encouraging it [engagement] and the kid's like grumpy and doesn't want to talk or doesn't feel well.''
Collaborative decision-making	AYAs (15.4%): ''It was a big, mutual decision.'' ''My parents thought about it, and I did, and then my uncle is like a doctor, so they were sort of talking to him.'' Caregivers (12.5%): ''Well, as a parent it is my obligation to explain to her, but at the same time it's her body, her treatment, so I have to help her make her decision.'' Providers (0%): No data in this category.
AYA in charge of decision-making	AYAs (15.4%): ''It's usually up to me. So if I say I'm going do it, they're like, 'Okay.''' Caregivers (43.7%): ''It was his choice whether we went with the tried and true or he decided to do the trial.'' ''It was his decision…I don't know if I'm comfortable with that but if that's what you're comfortable with.'' Providers (9.1%): ''With some families, the children are more likely to make the decisions.''

Note. *n* AYAs = 13; *n* caregivers = 16; *n* providers = 11.
AYA, adolescent and young adult.

and the potential for *increased length of treatment* in comparison to standard treatment, as well as some AYAs' and caregivers' beliefs that *standard treatment and clinical trials are equivalent in efficacy*. For example, one caregiver noted, ''We thought it was better not to prolong her treatment [by enrolling on the trial].'' Many respondents in all three groups noted that the *need for quick decision-making at the time of diagnosis* and the *amount of information* that must be reviewed in a short period of time served as barriers to clinical trial enrollment (AYA: ''I didn't really understand it [the clinical trial] too much.''). None of the AYAs or caregivers reported feeling pressured to enroll in a phase III clinical trial. AYAs and caregivers reported that they were generally satisfied with their decision about whether or not to enroll in a phase III clinical trial (caregiver: ''I think, under the family circumstances, I think I did very good about decision-making.'').

Interestingly, some AYAs noted their *perceived efficacy*/sense of autonomy was supported by involvement in the process (''Cancer serioused me up a bit.''), but many perceived no change in this developmental goal. Providers noted that AYAs' involvement had a positive impact on adherence

Table 3. Illustrative Quotes About Factors that Influence AYAs' Involvement in Phase III Cancer Clinical Trial Enrollment Decision-Making

Theme/factor	*Example quotes*
(−) Acute stress/distress	AYAs: ''In the beginning, I was really shocked as everything was going on.'' Caregivers: ''So we all got hit with the shock at once.'' ''It is emotionally hard for the person who is right next to that person [AYA with cancer].'' ''I don't think he made major decisions when he was not right in the head.'' Providers: ''All cancer is…a really big stress. So some people are really capable of responding in capable ways…and then there are people who are limited and respond in limited ways.'' ''Generally, people are really upset that their kid has cancer and they are in the mindset that 'If I do everything the doctor tells me, it will be okay.''''
(−) Physical illness/reduced health-related quality of life	AYAs: ''My parents [made the final decision] 'cause I was like out of it.'' ''Although I was kind of asleep during the process…I kept zoning in.'' Caregivers: ''They did talk to her to the extent they could, but she was too sick at the time.'' ''My husband and I did it together because [our AYA patient] was too sick to participate.'' Providers: ''Oftentimes, the family meetings are being done without the kids because the kids are sick and they feel terrible.''
(+) Developmental maturity: cognition	AYAs: ''For the experimental thing, they totally went to me…I just turned 18.'' Caregivers: ''I think they could tell just from talking to [my AYA patient]…that he is a smart cookie and that…the doctors would be able to talk to him in a way he would understand and participate.'' ''Age is a number and doesn't necessarily mean that you're old enough to know better.'' Providers: ''Can a 15 or 16 year old understand what a clinical trial means? I think that most of them can with the right kind of explanation.'' ''Someone is 18; they are an adult. I may modify how I present things to them but they are responsible.'' ''In general, adolescents have a harder time seeing the long-term.''
(+) Emotional maturity: autonomy	AYAs: ''I was like a full-grown baby.'' Caregivers: ''He wasn't listened to and that discouraged him.'' ''I like when she participates in her care because that is part of growing up.'' ''My daughter has always had her own voice.'' Providers: ''The kids who are already kind of dependent on their parents for everything just continue to be dependent on their parents for everything.'' ''[The AYA's] level of involvement in the meeting is just a reflection of their level of involvement outside of that.''

Note. (−) indicates a factor that limits enrollment; (+) indicates a factor that facilitates enrollment.
AYA, adolescent and young adult.

(''…patients that are the most involved in their decision-making, really have the most understanding of what is going on and why we're asking them to do certain things. And I think it's that understanding that promotes adherence.''). Both AYAs and caregivers noted *altruism* as another perceived benefit of enrollment.

PRPQ relevance and modifications

Overall, all three groups were satisfied with the depth and breadth of the PRPQ, a measure of perceived benefits and barriers to clinical trial enrollment. However, minor changes were suggested to better reflect the barriers and benefits

Table 4. Illustrative Quotes About Perceived Barriers and Benefits of Phase III Cancer Clinical Trial Enrollment for AYAs

Theme	*Example quotes*
(−) Perceived barriers to enrollment • Additional procedures • Increased length of treatment • Standard treatment perceived to be as or more effective than clinical trial • Need for quick decision-making at time of crisis • Amount of information (too much or too little)	AYAs: ''The additional 4–5 months did not sound appealing to me.'' [Reason for refusing trial] ''I would have said yes either way but like I didn't really understand it too much, maybe like a couple of days later.'' '''Cause they offered the pros and cons of it so it was easy to understand.'' Caregivers: ''We did the standard treatment. He had had enough. [Our AYA patient said], 'They're not cracking my chest…I've had enough.''' ''My mind was like on overload. I felt like I went to nursing school in a real short amount of time.'' ''If the circumstances were different and we had time to think about it, maybe we would have researched it more.'' Providers: ''Some people have said that adolescents will react to that [more visits, more procedures in trials]. Most teens don't want to be here.'' ''I still try to have the discussion in the room with the patient there because I feel even if they are curled up in a little ball, they're still listening to what you have to…say to them, 'I know you're not feeling well. We can talk about these things again but we have to do it today before starting the treatment.''' ''I think how capable we are…in communicating clearly and consistently are really important.''
(+) Perceived benefits of enrollment • Perceived efficacy • Altruism	AYAs: ''Potentially able to lessen the amount of time that I had my cancer so we tried it.'' ''If I could get the treatment done and they can take a little more to try and help someone down the road, it'd be better for them than it would for me.'' Caregivers: ''I know it is because of all the benefits that have come to the kids because of past participation and studies. They were personally invested in participation but there was not force at all or any coercion.'' Providers: No data in this category.

Note. (−) indicates a factor that limits enrollment; (+) indicates a factor that facilitates enrollment.
AYA, adolescent and young adult.

experienced by AYAs offered enrollment in a phase III cancer clinical trial. Based on feedback, 2 items were added, 7 items referencing either psychosocial studies or religion were removed, and the wording of 6 items was revised (see Table 5 for summary of revised items). The added items were: (1) Barrier: ''I don't have time to think through a clinical trial decision in a clear and calm manner'' and (2) Benefit: ''Researchers communicated clearly during the diagnostic meeting.''

Discussion

Clinical trials are a vital aspect of treating illness and improving health outcomes.[31] Disparities in enrollment may explain disparities in treatment outcomes for AYAs with cancer. There is clearly urgency to understand barriers to clinical trial enrollment in the AYA oncology population, for whom clinical trial enrollment has been more limited than enrollment rates for younger children;[5] yet systematic investigation of reasons for reduced participation is just beginning. Results from this qualitative study provide preliminary data regarding patterns of AYAs' involvement in phase III clinical trial enrollment decision-making, factors that influence involvement, and potential barriers to enrollment.

Our study found that AYAs perceive that their involvement in the decision about treatment through a phase III clinical trial was limited, despite their caregivers' and their healthcare providers' self-reported efforts to involve them. Regardless of age or ultimate enrollment decision, AYAs perceived themselves as less engaged in the process than their caregivers perceived them, and they regretted their lack of direct involvement. Similar to the social ecological model on which the PRPQ is based, factors at a number of levels of AYA social ecology may serve to limit involvement in decision-making, including distress and physical illness/reduced HRQOL.[32] Cognitive and emotional maturity, support from friends and family, and perceived benefits may facilitate AYAs' involvement and enrollment. Our findings confirm those of Snethen and colleagues, who described three developmental patterns of parent–child decision-making in pediatric clinical trials, including trials for cancer: young children who have no role in the decision, teenagers who participate in learning about the trial but leave decision-making to their parents, and older AYAs who make the final

Table 5. Suggested Item Modifications to Increase Relevance of the Pediatric Research Participation Questionnaire for Evaluating AYAs' Phase III Cancer Clinical Trial Decision-Making

Original item	*Revised item*
We learn more about my/my child's illness.	Researchers learn more about my/my child's illness and how to treat it.
We participate in research because the healthcare team takes good care of me/my child.	We participate in a clinical trial if: (a) I trust the medical team. (b) I trust the medical institution.
Research is part of a conspiracy to harm ethnic minorities.	Clinical trials purposefully harm minority groups.
We would not participate in a clinical trial if the trial might cause me/my child physical harm.	We would not participate in a clinical trial if the trial might cause me/my child physical harm (i.e., more potential side effects).
It makes me uncomfortable when my healthcare team wants to do research with me/my child because the healthcare team will view me/my child only as a research participant if we enroll.	It makes me uncomfortable when my healthcare team wants to do research with me/my child because the healthcare team will view me/my child only as a guinea pig if we enroll.
The following people would support my decision to participate in research: • Our community agency • Our religious leader.	The following people would support my decision to participate in research: • Our community agency or third parties with experience with clinical trials • Our religious leader/higher power • Outside physician/pediatrician.

AYA, adolescent and young adult.

decision while seeking input or approval from their parents.[33] The possible link between an AYAs' involvement and the decision to enroll in a clinical trial requires confirmation in larger studies with 'real time' data collection at the point of diagnosis and decision-making for patients across the AYA age spectrum.

Findings from Snethen et al.[33] and this study indicate that providers should be guided by recommended models for supporting AYAs' involvement in collaborative decision-making. For example, Whitney and colleagues[34] outlined a model describing the interaction of AYAs' level of involvement with steps in the decision process regarding participation in a cancer clinical trial (i.e., decision recognition, information gathering and sharing, decisional priority, decisional authority, and legal authority). The model suggests that when there are more choices and a greater (probable to possible) chance of cure, it is important for adolescents and families to participate in the decision together.

The potential relevance of the PRPQ for systematically evaluating the attitudes of AYAs and their caregivers toward phase III clinical trials received initial support. The measure now requires further refinement and validation. Once established, use of the PRPQ to screen for perceived barriers and benefits to phase III clinical trial enrollment will allow researchers to address attitudes during recruitment.

It is possible that creating collaborative decision-making processes that meaningfully involve an AYA[34] may set a precedent for the AYA's involvement throughout treatment. Ancillary findings from this sample of primarily older adolescents indicated that for those who were treated on a clinical trial, there was an association of involvement in the clinical trial enrollment decision with engagement in treatment and adherence; however, the extent to which involvement in the decision influenced the actual decision or engagement in treatment cannot be confirmed from this study.

Strategies for improving diagnostic meetings and enhancing the engagement of AYAs in clinical cancer trial decision-making were suggested by the interviews. Structuring the diagnostic meeting in a manner that simplifies the presentation of information and confirms understanding is consistent with Kodish's work examining consent/assent procedures for phase I and III clinical trials.[35–37] This approach may allow AYAs to become involved in the decision-making process while providing caregivers with the opportunity to process information about cancer, treatment, and clinical trials. Decision tools[38–40] or strategies for improving the delivery of healthcare information and enhancing the decision-making process, used together with the PRPQ, may provide an effective method to addressing attitudes toward cancer clinical trials and engage, educate, and guide AYA decision-making for treatment via a phase III clinical trial.

Conclusion

Caregivers and providers indicated that they made efforts to involve AYAs in phase III cancer clinical trial decision-making, but findings suggest AYAs' involvement is limited, primarily due to acute stress/distress, physical illness/reduced HRQOL, and developmental immaturity. Structured meetings at diagnosis, use of the PRPQ to identify attitudes, and use of decision support tools to address perceived barriers and benefits may facilitate increased involvement.

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References

1. Bleyer A, O'Leary M, Barr R, Ries LAG (Eds). Cancer epidemiology in older adolescents and young adults 15–29 years of age, including SEER incidence and survival, 1975–2000 (NIH Publication No. 06-5767). Bethesda, MD: National Cancer Institute; 2006.
2. Bleyer WA. Cancer in older adolescents and young adults: epidemiology, diagnosis, treatment, survival, and importance of clinical trials. Med Pediatr Oncol. 2002;38(1): 1–10.
3. Burke ME, Albritton K, Marina N. Challenges in the recruitment of adolescents and young adults to cancer clinical trials. Cancer. 2007;110(11): 2385–93.
4. Ferrari A, Bleyer A. Participation of adolescents with cancer in clinical trials. Cancer Treat Rev. 2007;33(7):603–8.
5. Bleyer WA, Tejeda H, Murphy SB, et al. National cancer clinical trials: children have equal access; adolescents do not. J Adolesc Health. 1997;21(6):366–73.
6. Shaw PH, Ritchey AK. Different rates of clinical trial enrollment between adolescents and young adults aged 15 to 22 years old and children under 15 years old with cancer at a children's hospital. J Pediatr Hematol Oncol. 2007;29(12): 811–4.
7. Hinds PS, Oakes L, Furman W, et al. End-of-life decision making by adolescents, parents, and healthcare providers in pediatric oncology. Cancer Nurs. 2001; 24(2):122–35.
8. Adolescent and Young Adult Oncology Progress Review Group. Closing the gap: research and cancer care imperatives for adolescents and young adults with cancer (NIH Publication No. 06-6067). Bethesda, MD: Department of Health and Human Services, National Institutes of Health, National Cancer Institute, and the LIVESTRONG Young Adult Alliance; August 2006.
9. Freyer DR, Felgenhaurer J, Perentesis J. Children's Oncology Group's 2013 blueprint for research: adolescent and young adult oncology. Ped Blood Cancer. 2013;60(6):1055–8.
10. Abrams AN, Hazen EP, Penson RT. Psychosocial issues in adolescents with cancer. Cancer Treat Rev. 2007;33(7): 622–30.
11. Seiffge-Krenke I. Chronic disease and perceived developmental progression in adolescence. Dev Psychol. 1998;34(5): 1073–84.
12. Broome ME, Richards DJ. The influence of relationships on children's and adolescents' participation in research. Nurs Res. 2003;52(3):191–7.
13. Broome M, Richards D, Hall J. Children in research: the experience of ill children and adolescents. J Fam Nurs. 2001;7(1):32–49.
14. De Vries MC, Wit JM, Engberts DP, et al. Pediatric oncologists' attitudes towards involving adolescents in decision-making concerning research participation. Pediatr Blood Cancer. 2010;55(1):123–8.
15. Stegenga K, Ward-Smith P. The adolescent perspective on participation in treatment decision making: a pilot study. J Pediatr Oncol Nurs. 2008;25(2):112–7.
16. Miller DC, Byrnes JP. The role of contextual and personal factors in children's risk taking. Dev Psychol. 1997;33(5): 814–23.
17. Unguru Y, Sill AM, Kamani N. The experiences of children enrolled in pediatric oncology research: implications for assent. Pediatrics. 2010;125(4):e876–83.
18. Varma S, Jenkins T, Wendler D. How do children and parents make decisions about pediatric clinical research? J Pediatr Hematol Oncol. 2008;30(11):823–8.
19. Martin LR, DiMatteo MR, Lepper HS. Facilitation of patient involvement in care: development and validation of a scale. Behav Med. 2001;27(3):111–20.
20. McCabe MA. Involving children and adolescents in medical decision making: developmental and clinical considerations. J Pediatr Psychol. 1996;21(4):505–16.
21. Simon CM., Siminoff LA, Kodish ED, Burant C. Comparison of the informed consent process for randomized clinical trials in pediatric and adult oncology. J Clin Oncol. 2004;22(13):2708–17.
22. Woodgate RL, Yanofsky RA. Parents' experiences in decision making with childhood cancer clinical trials. Cancer Nurs. 2010;33(1):11–8.
23. Barakat LP, Patterson CA, Mondestin V, et al. Initial development of a questionnaire evaluating perceived benefits and barriers to pediatric clinical trials participation. Contem Clin Trials. 2013;34(2):218–26.
24. Byrnes JP. The development of decision-making. J Adolesc Health. 2002;31(6 Suppl):208–15.
25. Sandelowski M. The problem of rigor in qualitative research. ANS Adv Nurs Sci. 1986;8(3):27–37.
26. Denzin NK, Lincoln YS. The SAGE handbook of qualitative research. Beverly Hills, CA: Sage; 2005.
27. Whittemore R, Chase, SK, Mandle, CL. Validity in qualitative research. Qual Health Res. 2001;11(4):522–37.
28. Hsieh H-F, Shannon SE. Three approaches to qualitative content analysis. Qual Health Res. 2005;15(9):1277–88.
29. Sandelowski M. Qualitative analysis: what it is and how to begin. Res Nurs Health. 1995;18(4):371–75.
30. Glaser B. Theoretical sensitivity: advances in grounded theory. Mill Valley, CA: The Sociology Press; 1978.
31. International Clinical Trials Registry Platform. Clinical trials in children. Geneva, Switzerland: World Health Organization; 2010. Accessed November 4, 2013 from: www.who.int/ictrp/child/en/
32. Kazak AE. A contextual family/systems approach to pediatric psychology: introduction to the special issue. J Pediatr Psychol. 1997;22(2):141–8.
33. Snethen JA, Broome ME, Knafl K, et al. Family patterns of decision-making in pediatric clinical trials. Res Nurs Health. 2006;29(3):223–32.
34. Whitney SN, Ethier AM, Frugé E, et al. Decision making in pediatric oncology: who should take the lead? The decisional priority in pediatric oncology model. J Clin Oncol. 2006;24(1):160–5.
35. Kodish E, Eder M, Noll RB, et al. Communication of randomization in childhood leukemia trials. JAMA. 2004; 291(4):470–5.
36. Kodish E, Pentz R, Noll R, et al. Informed consent in the Children's Cancer Group: results of preliminary research. Cancer. 1998;82(12):2467–81.
37. Simon C, Zyzanski SJ, Eder M, et al. Groups potentially at risk for making poorly informed decisions about entry into clinical trials for childhood cancer. J Clin Oncol. 2003;21(11):2173–8.
38. Neuman HB, Charlson ME, Temple LK. Is there a role for decision aids in cancer-related decisions? Crit Rev Oncol Hematol. 2007;62(3):240–50.

39. Whelan T, O'Brien MA, Villasis-Keever M, et al. Impact of cancer-related decision aids: summary. AHRQ Evidence Report Summaries Number 46 (AHRQ Publication No. 02-E033). Rockville, MD: Agency for Healthcare Research and Quality; July 2002. Accessed August 10, 2013 from: www.ncbi.nlm.nih.gov/books/NBK11928/
40. O'Connor AM, Rostom A, Fiset V, et al. Decision aids for patients facing health treatment or screening decisions: systematic review. BMJ. 1999;319(7212):731–4.

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