

Oncologists' End of Life Treatment Decisions: How Much Does Patient Age Matter?

Journal of Applied Gerontology
1–25

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DOI: 10.1177/0733464815595510

jag.sagepub.com



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Abstract

Background: Optimal treatment decisions for older end-stage cancer patients are complicated, and are influenced by oncologists' attitudes and beliefs about older patients. Nevertheless, few studies have explored oncologists' perspectives on how patient age affects their treatment decisions.

Methods: In-depth interviews were conducted with 17 oncologists to examine factors that influence their chemotherapy decisions for adults with incurable cancer near death. Transcripts of recorded interviews were coded and content analyzed. **Results:** Oncologists identified patient age as a key factor in their chemotherapy decisions. They believed older adults were less likely to want or tolerate treatment, and felt highly motivated to treat younger patients. **Discussion:** Qualitative analysis of in-depth interviews resulted in a nuanced understanding of how patient age influences oncologists'

Manuscript received: July 30, 2014; **final revision received:** April 15, 2015; **accepted:** May 23, 2015.

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chemotherapy decisions. Such understanding may inform practice efforts aimed at enhancing cancer care at the end of life for older patients.

Keywords

aging, end-stage cancer, chemotherapy, treatment decisions

In 2014, it was estimated that nearly 1.7 million new cases of cancer would be diagnosed in the United States, along with more than 585,000 cancer deaths (American Cancer Society, 2014). These figures signal a special concern for older adults because age is a major risk factor for cancer. Cancer is the second leading cause of death for those above the age of 65 (Heron, 2013). In addition, more than 77% of all new cancers and 69% of cancer deaths occur among those ≥ 65 years old (American Cancer Society, 2014; Howlander et al., 2014). Given that a large proportion of cancer deaths occurs among older adults, it is important to understand how patient age may affect oncologists' treatment decisions, particularly at end of life.

Available research in this area has focused on patients with earlier stages of disease. These studies indicate that older adults benefit from cancer treatment and tolerate it well (Chakraborty, Geetha, Dessai, & Patil, 2014; Eisenhauer et al., 2007; Elkin, Hurria, Mitra, Schrag, & Panageas, 2006; Fisher, El-Fayea, Winget, Gao, & Butts, 2012; Hesketh et al., 2007; Langer, 2006). Yet compared with younger patients, older cancer patients often receive less treatment, contributing to poorer outcomes (Bouchardy, Rapiiti, Blagojevic, Vlastos, & Vlastos, 2007; Caprario, Kent, & Strauss, 2013; Dale, 2003; Given & Given, 2008; Markopoulos & van de Walter, 2012; Tew & Fleming, 2015). Older patient age has been associated with decreased histological verification of disease and with oncologists' decreased recommendations for treatment, mostly independent of clinical factors (Austin & Russell, 2003; Foster, Salinas, Mansell, Williamson, & Casebeer, 2010; Hurria et al., 2008; Peake, Thompson, Lowe, & Pearson, 2003).

Several factors contribute to age-related treatment disparities. First determining optimal treatment for older adults can be challenging (Dotan, Browner, Hurria, & Denlinger, 2012). In particular, older age is associated with increased prevalence of comorbidities and decreased functional status (Federal Interagency Forum on Aging-Related Statistics, 2012). Treatments have the potential to interact with comorbid conditions and decrease functional status and quality of life, making cancer treatments risky for some older patients (Institute of Medicine, 2007). In addition, older persons have been substantially underrepresented in clinical trials (Hutchins, Unger,

Crowley, Coltman, & Albain, 1999; Mohile, Dale, & Hurria, 2012; Sateren et al., 2002). As a result, little is known about optimal balance of treatment risks and benefits for older cancer patients, and few evidence-based guidelines exist to inform treatment approaches specifically targeted for this population (Hurria, Dale, et al., 2014; Hutchins et al., 1999; Lewis et al., 2003; Papamichael et al., 2014). A notable exception is the guidelines recently outlined by the National Comprehensive Cancer Network (NCCN; Hurria, Wildes, et al., 2014). Recommendations to fill knowledge gaps through improved clinical trial design are underway (W. Dale et al., 2012; Hurria, Dale, et al., 2014). For now, though, it can be difficult to determine whether age-related treatment differences represent appropriate care or unintentional ageism.

Although a growing body of literature confirms patient age influences cancer treatment, few studies have explored oncologists' attitudes and beliefs about patient age. Published work in this area is based on surveys and case vignettes of hypothetical patients and does not include actual decision making for incurable patients with end-stage disease (Foster et al., 2010; Hurria et al., 2008). Therefore, a study aimed at understanding the impact of patient age on oncologists' end-of-life treatment decisions is warranted. In related literature on treatment decision making, physicians' reasons for continuing futile life-sustaining treatment include clinician guilt, grief, and fear of legal consequences and concerns about the family's reaction (Jox, Schaidt, Marckmann, & Borasio, 2012). In a retrospective analysis of cancer deaths in an intensive care unit, physicians' apparent lack of mindfulness that patient death is a possibility and inadequate communication with families were also associated with decisions to offer futile care (Cruz, Camaliente, & Caruso, 2014). Similar physician-related factors have been reported in the literature on decision making regarding hospice care, particularly, inadequate communication with the patient and family and concerns about their reactions. These factors often result in the avoidance or delay of hospice care (Khatcheressian, Harrington, Lyckholm, & Smith, 2008). Patient and family requests for futile cancer treatment have also been noted as reasons for late hospice enrollment and futile chemotherapy treatment, but there is little data on how often these requests are actually made. Evidence that physician-related factors influence decisions about life-sustaining treatment and the timing of hospice enrollment suggests that oncologist-related factors may play a role in treatment decisions for older cancer patients.

We conducted a study to identify and describe a broad range of factors that influence oncologists' decision making about administering chemotherapy to patients with advanced, incurable cancer, near death (Bluhm, 2011). In-depth interviews were conducted with practicing oncologists to identify and understand

their rationales for administering chemotherapy to end-stage patients. As the study progressed, several factors that influenced treatment decisions emerged. Patient age was among the most influential, suggesting it is highly salient to treatment decisions and worthy of an in-depth and separate analysis. In this article, we present those finding specifically related to the influence of patient age.

Methods

The researchers selected a qualitative descriptive design because it is well suited to provide a comprehensive descriptive summary of factors that influence oncologists' chemotherapy decisions and to explore their meanings (Sandelowski, 2000, 2010). Experts in palliative medicine, oncology, qualitative research methods, gerontology, and public health comprised the research team. In-depth individual interviews with oncologists were used to (a) identify and examine factors that influence oncologists' decisions to offer chemotherapy to patients with end-stage disease and (b) understand oncologists' experiences and practices related to those decisions. The study was approved by the Institutional Review Boards of each health care setting from which oncologist participants were recruited.

Participants

Inclusion criteria were that participants must be either an oncologist who had completed fellowship training or an oncology fellow who routinely prescribes cytotoxic chemotherapy. Participants were required to speak English and be able to hear well (with or without a hearing aid). We used purposive sampling to target oncologist participants with varying degrees of experience in decisions about the use of chemotherapy at end of life, from varied practice settings. Thus, fellows were included to assure findings reflected perspectives of oncologists with a broad range of clinical experience. Participants were recruited from practice settings in the Midwest, including academic and private practice settings and an oncology fellowship program.

Procedures

Key informants from different practice settings in distinct locations identified a total of 19 eligible oncologists they believed would be interested in participating, and who met study criteria. They also attempted to balance the number of fellows, faculty physicians, and community practitioners identified. Invitation packets were mailed to all 19 eligible participants; 17 agreed to participate. Follow-up with non-responders involved email or phone contact

with a request for response, but did not prompt participation. Interviews were arranged and confirmed by phone or email. Informed consent, in writing, was obtained prior to each interview. The interviews took place at the private offices of participants or in a conference room in the same building.

Participants were reminded at the beginning of the interview to protect patient identity and not disclose names or identifying details of patient cases. Each interview lasted 60 to 90 min. Participants were offered US\$100 in appreciation for participation; four declined to accept payment. It can be difficult to achieve high rates of participation when recruiting oncologists into a study, and monetary incentives have been demonstrated to improve survey response rates in this population (Martins et al., 2012). Therefore, incentives were offered to assist with recruitment and enrollment and with oncologists' time and schedule constraints in mind.

Data Collection

The first author (Minnie Bluhm, Ph.D.) received training in qualitative methods as part of her doctoral training. This included extensive coursework and conducting numerous in-depth, individual interviews with end-stage cancer patients and focus group interviews with oncology nurses and physicians prior to work as part of this study. She conducted individual face-to-face interviews with all 17 participants, in close collaboration with co-authors who are experts in palliative medicine and qualitative research methods. Interview questions were outlined in a semi-structured interview guide comprised of open-ended questions followed by probes. The instrument was designed to elicit detailed narratives of oncologists' perceptions and experiences of their chemotherapy decision making for their patients with incurable late-stage cancer. Questions were also aimed at obtaining responses that identified and described the factors that influence these decisions. Most asked participants to share stories of patient cases in which specific chemotherapy decisions were made, and to identify influencing factors and their context. The first author developed the interview schedule in cooperation with the research team—an academic palliative care specialist, a professor of sociology and bioethics, and a gerontologist—all of whom have expertise in qualitative health care research. Existing literature also shaped the development of the interview schedule by suggesting domains for question topics. The interview schedule served as a guide rather than an instrument requiring rigid adherence. This approach offered flexibility to further explore particularly informative or illuminating responses and allow new ideas to be presented during the interviews. Interviews were digitally recorded and transcribed verbatim.

Data Analysis

Data were analyzed using conventional content analysis—an analytic method of choice for qualitative descriptive studies (Hsieh & Shannon, 2005; Mayring, 2000; Miles, Huberman, & Saldana, 2013; Patton, 2001; Weber, 1990). Analysis began with writing field notes after each interview (Lofland & Lofland, 1995). Observations, reactions, and reflections in the field notes informed the interviews that followed, as well as the analysis of the interview data. Interview recordings were transcribed verbatim, and transcripts checked against the recordings for accuracy. Data were organized and managed using NVivo software (QSR International, 2008).

Coding. A preliminary coding scheme was developed by reading the first three transcripts all the way through. Next, the transcripts were read a second time and open-coded. That is, any piece of text that identified or described an idea related to the factors that influence oncologists' chemotherapy decisions was given a label or code. Then the codes were examined and grouped into logical categories called analytic code categories. For example, labels such as *chemo caused a fever*, *chemo can kill you*, and *chemo made her tired* were grouped into an analytic code category called Adverse Effects of Chemotherapy; codes such as *cancer progressing*, *cancer controlled*, *tumor grew*, *slow-growing tumor*, and *cancer controlled but then progressed* were grouped into an analytic code category called Disease Status. The first three transcripts were then re-coded using the analytic categories (such as Adverse Effects of Chemotherapy or Disease Status). For example, whenever *chemo caused a fever* or *chemo made her tired* appeared in the text, they were coded as Adverse Effects of Chemotherapy.

To reduce the risk of systematic bias in the analysis, an oncology fellow informant participated in the development of the coding scheme. Both the first author and the oncology fellow used the preliminary coding scheme to independently code Transcripts 4 through 6. Coding differences were discussed and reconciled after coding each transcript. This process continued until codes were being used uniformly, resulting in a final iteration of the coding scheme. This final version was then used as the coding scheme for all of the transcripts.

Participation of the oncology fellow in developing the coding scheme contributed to the credibility of the analysis in at least two ways. First, her familiarity with the terminology and jargon of the field helped gauge face validity or whether we had correctly captured, labeled, and categorized what participants were communicating. Second, analyst triangulation (i.e., the use of more than one analyst) enhanced the dependability of the final

coding scheme by serving as a check for blind spots in the interpretations of a single analyst.

The coding scheme was used to apply a code to each idea in the transcript text, line-by-line. If more than one idea was reflected in a segment of text, multiple codes were assigned. This process was repeated for each of the 17 transcripts produced. Participant enrollment continued until new ideas no longer emerged in the interview data, and informational redundancy was achieved (Sandelowski, 1995). This was apparent by the 15th interview; two additional interviews were conducted after that to confirm redundancy. Analysis continued with the retrieval and examination of passages within particular analytic code categories to note patterns within and across interviews, such as elements that appeared with regularity or that were particularly illuminating or surprising. Selected quotes included here are those that best illustrate the themes in the data.

Results

Sample

Nineteen contacts were provided via key informants. All received letters inviting them to participate in the study; 17 consented, yielding a response rate of 89%. The study sample consisted of 17 oncologist participants from two different practice settings in two distinct locations. Twelve were affiliated with a large academic tertiary care center. Of those, 5 were oncology fellows, and 7 were medical school faculty who also practice clinical oncology. The remaining 5 participants were affiliated with a private oncology practice in a suburban community. Variation in practice setting and clinical experience was intentional to capture heterogeneity across participants. We enrolled a similar number of participants from each group, for the same reason. Among participants who were practicing oncologists, 3 specialized in breast cancer, 2 in sarcomas, and 1 each in cancers of the head/neck, hematological malignancies, esophageal/gastric cancers, and lung cancer; 3 identified as medical oncologists. Medical oncologists and fellows treated a wide range of cancer types.

Participants ranged in age from 29 to 67 years, with an average age of 47 years. The sample included 5 women and 12 men, 1 Asian, 1 African American, and 14 Caucasians. One participant's race/ethnicity was not identified. Among participants who had completed fellowship training, the number of years in practice ranged from 6 to 40 with an average of 18 years in practice. All fellows had fewer than 3 years of clinical oncology experience.

The Influence of Patient Age on Oncologists' Treatment Decisions

Results reported here focus on the influence of patient age on oncologists' treatment decisions. Although interview questions did not include specific reference to age, patient age emerged as one of the most frequently identified factors that influence treatment decisions and was often reported spontaneously in participants' stories about treatment decisions, suggesting that patient age is a highly salient factor in their decision making. All oncologists in this study cited patient age as an influence on their chemotherapy decisions for end-stage patients, with younger patients more likely to get treatment. Compared with younger patients, oncologists believed older patients are not as likely to want or tolerate treatment. Oncologists also reported feeling highly motivated to treat younger patients. None of the participants reported feeling similarly motivated to treat older patients.

Younger patients are more likely to be treated. Oncologists in this study reported that they are more likely to treat a younger end-stage patient than an older one. For example, when a participant was asked directly whether he was more likely to treat younger patients, he replied, "Oh, yeah. Yeah. If you're 20, you've got 60 years of life ahead of you. If you're 80 you've got three." Moreover, decisions to treat the very young and not treat the very old were reportedly easy to make: "So the extremes—the 16-year-old or the 86-year-old—those [treatment decisions] are easy. They're really quite easy."

In the following quote, a respondent cites a case in which the foremost rationale for treatment is young patient age:

A lot of times we suffer young people. We treat 'em. We just treat 'em. We were talking about third line therapy for a patient and he [the senior oncologist] asked, "Why do you want to give her third line therapy?" And everybody said, "Well, she's young."

Others reported similarly: "There are definitely situations where you treat a young person when you would tell an old person that it's time to go home" and "This guy was in much worse shape than the older man who came in, but there was no hesitation on anybody's part to treat this younger man with everything possible, which we did."

Oncologists' Beliefs and Perceptions

Patient age and the desire for chemotherapy. Oncologists in this study reported that a patient's desire to undergo chemotherapy is a leading factor in their decision to

offer it. However, participants believe that older adults with end-stage disease are less likely to want treatment and more likely to stop it when compared with younger patients. Furthermore, they believe that decreased desire for treatment among older adults is explained by the following factors: Older patients are more accepting of their cancer diagnosis and its consequences, are more satisfied with the lives they have lived, and prefer to preserve their quality of life rather than experience the adverse effects of aggressive treatments. Informants describe these rationales in the following ways:

People who are older in life, who've gone through their life, raised their family, their kids are grown and off, they're in retirement—they have a much easier time accepting that they have a cancer that's not curable and that it will end their life.

The older patients, they'll say, "I had a good life. I don't have young children who are dependent on me. I just want to enjoy my life as much as I can without going through this chemotherapy." So the older patients are, the higher the chances that they are going to say no to chemotherapy that might not be that effective. So age is important.

Age has a lot to do with it. A lot of older patients are perfectly fine saying this [chemotherapy] is not the route I want go. Older patients more often want to stop treatment than younger patients. And I think it's just the older patient's personal satisfaction with saying, "It's okay. My life is okay."

Oncologists in this study also reported that it is not difficult to steer older patients away from treatment, when compared with younger patients. One participant said, "It's funny, but the older patients are not too hard to talk out of treatment. A lot of them have lived a full life and they've seen lots of their friends and family die." Others cited examples of conversations in which they steer older patients away from chemotherapy, either by suggesting it should not be started, or once started, it should be stopped.

Most of the conversation was talking about why he shouldn't get treated. If he said, "I want treatment." I would have said, "No." When we formally talked about it, he agreed, but I think I was gently twisting his arm.

I don't have any difficulty saying to the 84-year-old who has lived a good life, who's already frail, not afraid of dying in particular, recognizes that death is not something he or she is going to escape under any circumstance, "We ought to stop this therapy. Knock it off." Some still don't stop it. But most of them do. With a tear in their eye, they will.

Although participants expressed the belief that older patients are less likely to want treatment and are talked out of it more easily, they also cited counter-examples of older patients who were adamant about receiving treatment. In cases where oncologists believe older patients want treatment, they typically reported offering it.

She was in her 70s and was always very adamant about wanting to be aggressive. And they were treating pretty aggressively. The hope was to bring her to bone marrow transplant, but she died while she was being actively treated.

I do remember one patient who was 82. He was the nicest guy. He had lung cancer. It was metastatic and there was never any chance of curing him, but he was having some pain and my first option for him was to do nothing. And that wasn't acceptable to him. So I gave him chemo.

I had a patient with lung cancer, advanced age, but very, very much wanted to be treated. And so I talked about a treatment that was basically a pill. In her case I wasn't expecting it to be overwhelmingly effective, but it had some potential benefit and relatively low toxicity. And I gave it to her.

One participant seemed puzzled as to why an older patient with end-stage disease would want chemotherapy:

It was metastatic. There was never any chance of curing him. After the second treatment I said, "I think we should stop." He said, "You're sure there's nothing else I can do?" And I wondered why is he doing this at 82? It was probably because he didn't want to leave his wife.

A small minority of participants expressed amazement with older patients' shock and distress in response to a poor prognosis. Some voiced surprise that patients in their 80s or 90s are jarred by their diagnosis and have not contemplated death or that they would want their oncologist to treat them.

We also see a surprising number of 80-some-odd-year-olds, who, when you tell them they have a terminal disease they're shocked as all hell, which I have never quite figured out. "How does your mind work? Do you think you're going to live forever?"

It amazes me. I have patients who are in their 90s and they tell me they don't want to die. And you sort of look at them and think, "You're 95! I mean what do you want me to accomplish for you?" And it amazes me that they've never thought about death.

Patient age and the ability to tolerate treatment. Participants widely reported that a patient's ability to safely tolerate chemotherapy was a top consideration in treatment decisions, regardless of patient age. However, oncologists in this study reported that older adults do not tolerate chemotherapy as well as their younger counterparts. Participants noted that the body's ability to rally or compensate in response to chemotherapy diminishes with age:

Whereas older people, because of everything they've gone through as they age, their organs don't work as well. When they start to get affected by chemotherapy, they show it. And they show it earlier. They've got less reserve to rally and to compensate.

Another noted that in light of these age differences, he is troubled by the suggestion to treat older patients the same as younger patients and by societal pressure to do so:

Within the society of medicine there has been a push for equality. Everybody should be given the opportunity to be treated equally, including the elderly. And just because somebody's 80 doesn't mean you can't do this [give late chemotherapy] to them. Well, with oncology drugs, you learn as you give these drugs to people, age does matter. Older people don't tolerate things as well. Sure, fitness and performance status are more important than age. But a fit 50-year-old will tolerate a hell of a lot more than a fit 80-year-old. So you have to take that into account. And the sad thing is that there are a fair number of very experienced oncologists out there who are espousing this: treat 80-year-olds the same way you treat 50-year-olds. And I have a lot of problems with that.

None of the oncologists in this study proposed offering identical treatments for all patients with similar disease and functional statuses, irrespective of age. Rather, respondents reported routinely offering lower or less frequent chemotherapy doses or selecting milder drugs for older patients with end-stage disease, based on the belief that they tolerate it less well and need modified regimens to make treatment safe. One participant said she often lowers the dose for her older patients: "With elderly people I always know that they might tolerate chemo worse. And often I'll even lower the doses a little bit, too, for starters, to make sure they tolerate it and then work my way up." Another reported the use of a milder regimen for those who are older: "We have a milder regimen that we like to give our older patients that might not cure them of their disease, but would prolong their life." This oncologist reduces the number of drugs given in a standard therapy to minimize the risk he perceived to an older patient:

I had a guy of advanced age who had a gastric cancer. And the standard palliative therapy can be two or three chemotherapy drugs. And I gave him one—so one third of what I would ordinarily give, but still a treatment dose. I didn't lower dosing in a way that I didn't think would be effective, but I picked a regimen that was going to minimize risk.

At times, the belief that older patients tolerate chemotherapy less well resulted in the decision not to treat:

He was an older gentleman in relatively good health till he got sick. So we didn't do standard induction therapy because there's not a great response rate in patients that have had previous myelodysplastic syndromes, and because patients that are older don't tolerate it as well.

Even when patients are otherwise healthy and there are no contraindications to treatment, advanced age was sufficient to prompt doubt about administering chemotherapy: "I couldn't say his kidneys were bad, or his heart was bad or his lungs were bad. Nothing was so bad that he could not get there, but he was just high risk because of his age." An oncology fellow describes it as a dilemma:

So we have a 92-year-old patient who was newly diagnosed with pancreatic cancer. He is in pretty good shape, more or less. And the question is do you treat him? Is his body going to tolerate chemotherapy for pancreatic cancer? That's the dilemma.

Feeling motivated to treat younger patients. Oncologists frequently reported feeling highly motivated to treat younger end-stage patients, but did not report similar feelings for older patients. For example, ". . . they [younger patients] got a phenomenal amount of treatment compared to older individuals because they can, and because of the emotional aspects of it. You want to fight; you want to keep going with a young person." Another oncologist reported observing a trend of aggressive treatment for younger patients and gave this example:

The trend that I have seen is younger patients are always treated *extremely* [said with emphasis] aggressively. They want to take a chance about everything. And I remember a young guy, 22-year-old who had leukemia. He got treated with everything. He got transplanted twice. I mean he got every possible regimen that we could come up with.

In the excerpt below, an oncologist-participant illustrates the compelling quality that leads to treating a younger patient and describes the emotional

impact of a bad cancer on the physician, as well as the patient. According to him, physician emotion plays a role in the treatment of younger patients, independent of the patient's performance status. Initiating or continuing treatment is automatic, even when young patients are very sick and there is a tacit belief that chemotherapy will not be beneficial. In contrast, he reports that an older patient in the same condition is more likely to receive a recommendation to stop or not start chemotherapy.

And the interesting thing is it [administering chemotherapy] is not always based on how healthy the young person is at the time. She was in just as bad, if not worse shape than the 75-year-old we'd be telling to go home. And yet we're gearing up to treat her again. And I think the reason behind that is youth. I think we want to save our youth. Period. Somebody comes in with young kids, that's not just hard for them handle, that's hard for us to handle. We see that every day. We don't want to tell somebody that comes in with a 2-year-old that we can't do anything for them. So she had CHOP therapy, which is first line. It didn't touch her. She had a second line therapy started and went into renal failure. So she didn't finish that and the CT showed that it didn't touch her. So we started third line therapy and she ended up in the ICU. And they were still thinking about potential salvage therapy if she ever gets well enough to transplant! But if you stopped everybody in the room and asked is this going to work or is she going to die, and just make everybody answer, I think everybody would have said, "She's going to die." I think we definitely do more things that have the potential to be futile in younger patients.

Young patients who are also parents, and particularly those who are mothers, were consistently featured by respondents as cases that they are highly motivated to treat and where chemotherapy is likely to be made available up till death, even when tolerability or benefit may be in question. The following quotes illustrate this point: "It's usually young women with young kids and they tend to be treated to the very end." "A young woman I had, she was 40 years old and she had a little 5-year-old girl. So you can see what her motivation, of course, is. That was just heart breaking."

One of my first patients to get better from cancer was a young mother. She got admitted to the hospital where the recommendation was pain management for metastatic cancer. And the reason that I can remember her with such great detail is that she looked me in the eye and she said "I don't want to die. I have children I need to be with."

The patients that I treat right through death are the young patients. So you've got a 35-year-old mom who has got two kids and she wants to see the next birthday. So those people, you know, those you treat.

Discussion

In response to in-depth interviews, oncologists identified and described a broad range of factors that influence their treatment decisions. This discussion focuses on patient age—one of the most influential and salient factors reported—and its impact on oncologists' chemotherapy decisions for those with advanced incurable cancer. As expected, results are consistent with the well-documented finding that older cancer patients receive less treatment than younger patients. They also provide rich and detailed descriptions of why this is the case. Three key findings were identified. Oncologists (a) believe older patients are less likely to want treatment, (b) believe older patients are less able to tolerate treatment, and (c) feel highly motivated to treat younger patients—an experience not reported with older patients.

Findings from this study suggest oncologists believe that older patients with terminal cancer are less likely than younger patients to want treatment. Several factors were thought to facilitate acceptance of incurable disease and reduce the desire for treatment—living a long life, no longer having dependent children, and seeing others die ahead of you. However, results also suggest that oncologists may overestimate the impact of advanced age on reducing desire for chemotherapy and may overlook individual treatment preferences that are inconsistent with their assumptions.

Although participants expressed the belief that older patients generally want less treatment, they also noted that some are adamant about receiving it. This finding is consistent with earlier work indicating some older patients do want treatment, even when it means increased risk of serious negative side effects (Mandelblatt et al., 2010; Wright et al., 2010). Participants in this study viewed older patients who wanted treatment as exceptions. Despite their views, they reported treating older patients if chemotherapy could be offered safely.

The extent to which the belief that older patients want less treatment interferes with honoring patients' treatment preferences is unclear. Optimal treatment decisions include determining patient preferences and values, as well as weighing clinical benefits and burdens. Participants in this study uniformly reported weighing clinical factors in their treatment decisions, yet, reports of physician-initiated discussions of patients' values and treatment preferences were infrequent. These findings suggest a potential opportunity to assist patients with self-advocacy in making their treatment preferences known. A recent study suggests that although older patients with chronic illnesses, including cancers, may be at a disadvantage when self-advocating, providers can promote their involvement by framing clinical issues in terms of impact on quality of life and daily routine, rather than in strictly clinical terms (Ruggiano, Whiteman, & Shtompel, 2014).

Oncologists in this study also believe that older patients with incurable disease do not tolerate chemotherapy as well as younger patients. While previous work on tolerability has been limited to patients with potentially curable disease, those results are consistent with our findings. For example, increased prevalence of comorbidities with age is widely reported to compromise ability to tolerate chemotherapy (Baker & Grochow, 1997; Chen, Royce, Extermann, & Reeve, 2012), although this factor only partly explained the under-treatment of elderly cancer patients (D. Dale, 2003). Our results align with these findings, as well. Oncologists administer to their older patients lower dose/frequency chemotherapy regimens than are recommended. In some cases, their rationale for these treatment decisions relates to comorbidities or frailty, but in others it is simply the belief that older patients do not tolerate chemotherapy as well as other patients and need modified regimens to make treatment safe.

Balducci (2007) noted that the belief that older adults tolerate chemotherapy less well is common, and stems from public perceptions of older adults as frail and unable to tolerate even limited amounts of stress. The Comprehensive Geriatric Assessment (CGA; Mchile & Magnuson, 2013) and Chemotherapy Risk Assessment for High-Age Patients (CRASH; Extermann et al., 2012), as well as decision aids such as those used for cancer screening in older adults (Tisnado, Moore, Levin, & Rosen, 2012), may assist oncologists and other cancer care team members in making safe, effective treatment recommendations for end-stage patients, while serving as a check on age bias in decision making (de la Cruz & Bruera, 2013). Evidence-based guidelines tailored to older cancer patients are also needed. To date, few such guidelines exist. The NCCN Guidelines (Hurria, Wildes, et al., 2014) are a notable exception, yet none of the participants in this study referenced NCCN or other guidelines as an influence on their treatment decisions. Further study on whether and to what extent oncologists rely on evidence-based treatment guidelines may be useful in efforts to broadly disseminate and apply them.

Oncologists in this study felt highly motivated to treat younger end-stage patients, but did not report feeling similarly interested or eager with respect to treating older end-stage patients. Treatment decisions on either end of the age continuum were cited as easy: The very young get treatment almost automatically, while the very old give physicians pause. Participants described wanting to fight for young patients but being comfortable telling their elderly patients in the same conditions that it's time to stop treatment. Moreover, they reported treating younger patients near death, when they would send home older patients with similar clinical presentations. These findings suggest that there is something compelling about the developmental and life circumstances of

younger patients that motivates oncologists to treat them and that these factors diminish with patient age.

Other physicians have reported similar influences on their decision making. In a case study, Penson, Daniels, and Lynch (2004) examined factors that influenced their treatment decisions for an 84-year-old woman with lung cancer. Although this patient was not near death, and her disease potentially curable, the role of patient age in shaping medical conclusions is illustrative. The authors reported that prior to evaluation of the patient, and based on her age and appearance alone, they concluded she would prefer symptom relief in favor of life-prolonging treatment, and that her ability to tolerate chemotherapy was questionable. Furthermore, they indicated that if the patient had been younger, they would not have hesitated to treat. They attributed these conclusions to personal biases about the elderly that are reinforced by societal beliefs and ageism.

Our finding that oncologists are more highly motivated to treat younger patients may reflect age bias, however, unintentional. Ageist attitudes and beliefs have been reported among physicians who care for older adults (Davis, Bond, Howard, & Sarkisian, 2011; Gunderson, Tomkowiak, Menachemi, & Brooks, 2005), including oncology health professionals (Kearney, Miller, Paul & Smith, 2000). Studies of physicians-in-training suggest that medical students express both positive and negative views about caring for older patients (Higashi, Tillack, Steinman, Harper, & Johnston, 2012) but demonstrate age bias in treatment recommendations (Madan, Cooper, Gratzler, & Beech, 2006). And, while older adults present unique challenges related to cancer treatment decisions, age-related biases and disparities persist independent of comorbidities, functional status, and available evidence-based treatment guidelines (Austin & Russell, 2003; Ayanian et al., 2003; D. Dale, 2003; DeMichele, Putt, Zhang, Glick, & Norman, 2003; Foster et al., 2010; Given & Given, 2008; Hurria et al., 2009; Klepin, Tooze, Song, Geiger, & Foley, 2013; Mahoney, Kuo, Topilow, & Davis, 2000; Peake et al., 2003; Pulte, Redaniel, Bird, & Jeffreys, 2014; Shepherd et al., 1994).

It is plausible that age bias represents a well-intentioned effort to provide safe, age appropriate treatments to older adults and may actually serve to spare them the negative effects of chemotherapy that is unlikely to be beneficial. On the other hand, age bias also has the potential to result in treatment decisions that fail to honor patients' preferences. At least one study indicates that older adults who want life-prolonging treatment are less likely to receive it, when compared with their younger counterparts (Parr et al., 2010). In addition, non-standard lower doses and gentler regimens of chemotherapy, while benevolent attempts to "do no harm," may actually contribute to the often poorer outcomes seen among older adults (Ayanian et al., 2003;

Mahoney et al., 2000; Peake et al., 2003; Vijayvergia et al., 2013; Zhang & Sun, 2014). Further research regarding the potential consequences of age bias on patients' treatment preferences and outcomes in end-of-life cancer care is warranted.

Findings from this study suggest several next steps for future research. First, a study with a larger sample size is needed to more fully assess factors such as physician age, gender, race, years in practice, and practice by cancer type. It is plausible that these physician-related factors are associated with oncologists' attitudes and beliefs about older patients, and that they affect treatment decisions. Second, it is unclear how accurately oncologists' self-reported beliefs about older patients predict their actual treatment decisions. Future work that examines this relationship needs to compare documented treatment decisions of individual oncologists with their particular beliefs about older patients and could be accomplished with a mixed methods approach. Finally, these findings indicate oncologists are more highly motivated to treat younger patients than older ones. Future work needs to explore the underpinnings of this difference in motivation among oncologists, and determine the extent to which it may be prevalent among other providers (e.g., nurses, social workers). Such work may begin to inform interventions to address differences in motivation to provide treatment.

Clinical Implications

According to the Institute of Medicine (2013), high-quality cancer care is best accomplished by interdisciplinary teams. Our findings support this approach and suggest that an interdisciplinary team include oncologists, geriatricians, nurses, social workers, spiritual care providers, psychologists, and others. Providing cancer care as a team approach holds promise for addressing unintentional ageism in clinical settings. Colleagues might work together to promote continuing education on topics of clinical relevance, such as the presence and impact of ageism in cancer care, and the importance of CGA and other geriatric risk assessment screening tools in chemotherapy treatment decisions (Extermann et al., 2012; Soubeyran et al., 2012).

Results of this study underscore the need for clinicians to initiate frank conversations with older patients to specifically determine their preferences for information and involvement in cancer treatment decisions. Such preferences are not always easy to predict and may not reflect physician preferences (Elkin, Kim, Casper, Kissane, & Schrag, 2007). Communicating with older patients to clearly understand their treatment preferences is essential to patient-centered care, given the potential for misaligned perceptions and unintentional

age bias. Increased communication may also present opportunities to assist patients with self-advocacy during the course of their cancer treatment.

Finally, our findings suggest that there is an opportunity for experienced clinicians to be role models and mentors to clinicians in training and even to peers. Attitudes of medical students and doctors toward older patients have been shown to improve with increased interaction with active older adults, and to empathy building exercises that involve listening to older adults and understanding their daily experiences (Samra, Griffiths, Cox, Conroy, & Knight, 2013). Furthermore, physicians have reported that colleagues who demonstrate empathy and consideration for patients are viewed as role models with a positive influence (Ahrweiler, Neumann, Goldblatt, Hahn, & Scheffer, 2014). Clinicians who mentor others to better provide care to older patients may be uniquely positioned to offer learning opportunities that result in more positive attitudes toward older adults.

Limitations

This study has several limitations. First, it focuses on *oncologists' perspectives* about factors that influence their treatment decisions. It is unclear whether and to what extent these factors play a role in *actual* decisions. Future studies that include the perspectives of oncologists as well as patients and family members would offer a more complete picture of how chemotherapy decisions are made at end of life. Ideally, this work would include multiple qualitative assessments from the time of diagnosis through end of life. Second, the data collected were retrospective—participants were asked to reflect on prior cases. So, the impact of possible recall bias cannot be determined. Third, the intent of this study was to examine a broad range of factors that influence oncologists' chemotherapy treatment decisions at the end of life. The sample was not limited to older oncologists or oncologists with primarily older patients; participants were not asked to limit their responses to cases that involved an older patient. Instead, the critical role of age in treatment decision making emerged entirely from the interviews, with all participants citing patient age as a primary consideration in their decisions about chemotherapy. Finally, social desirability may have influenced responses.

Conclusion

It is well documented that older cancer patients receive less treatment compared with their younger counterparts. Our findings align with the literature and strongly confirm that patient age impacts oncologists' beliefs and

treatment decisions in end-stage patients. This study adds to the literature by providing detailed accounts from oncologists to suggest *why* this is the case. Specifically, oncologists' beliefs that older patients' desire less treatment and tolerate it less well, and their increased motivation to treat younger patients relative to older ones are factors that have significant influence on treatment decisions. Future research on the prevalence of these beliefs and their impact on patient outcomes is warranted. Older adults are a heterogeneous group, and the influence of unexamined assumptions based on age alone is unclear. Optimal treatment decisions involve weighing the benefits and burdens of treatments and assisting the patient in selecting options consistent with their preferences and values. For older cancer patients, they must also incorporate physiological and psychosocial factors specific to older adults, and minimize the influence of potentially biased beliefs about chronological age (Balducci, 2007; Balducci, Collacaa, Cesarib & Gambassic, 2010; Carreca & Balducci, 2009; D. Dale, 2003; Lawler, Selby, Aapro, & Duffy, 2014).

Authors' Note

An early version of this work was presented at the 64th Annual Scientific Meeting of the Gerontological Society of America in November, 2011, in Boston, Massachusetts.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

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