

# Patient's Misperceptions about the Effectiveness of Chemotherapy in Advanced Cancers

Cassandra D Foss and Dana M Chase\*

Division of Gynecologic Oncology, University of Arizona Cancer Center at St. Joseph's Hospital and Medical Center, AZ, USA

## Abstract

Although chances of a cure are low, patients with advanced cancers may be offered therapies which may prolong life or palliate symptoms. Patients with advanced cancers who accept chemotherapy do not necessarily understand or accept the high probability that their cancer may not be cured. The article reviewed here demonstrates these misperceptions by surveying patients with advanced lung and colorectal cancers. Their findings indicate that the large majority of these patients believed that undergoing chemotherapy was likely to cure their disease. However, of patients who portray an understanding of the incurable nature of chemotherapy, satisfaction with physician communication may be compromised. How these results apply to patients with other advanced cancers in different specialties may offer directions for future research.

**Keywords:** Chemotherapy; Cancer; Palliative

## Background

Although chemotherapy is the mainstay of treatment for patients with metastatic lung or colorectal cancers, it is not curative, with minimal survival benefit, being measured in months or even weeks. Likewise, patients with advanced gynecologic cancers, such as ovarian cancer experience similar marginal survival benefit when undergoing chemotherapy, especially in the setting of recurrent disease. Though chemotherapy may provide a palliative benefit, many therapies are also associated with substantial toxicities which may affect Quality of Life (QOL) and end-of-life care. Up to one-fifth of all cancer patients are treated with chemotherapy in the last month of life without clear benefits (e.g. no prolongation of life) and sometimes even with visible negative consequences (increased toxicity, costs and decreased QOL) [1]. It is therefore imperative that patients have a realistic understanding of the nature of their disease and the poor likelihood of cure in order to truly provide informed consent to treatment in the setting of advanced disease. Recent evidence has suggested that many patients with metastatic cancers hold the belief that palliative chemotherapy may be curative. The authors in this study sought to further characterize the expectations of patients with metastatic lung or colorectal cancer about the effectiveness of chemotherapy.

## Methods and Results from Paper

Using data from the Cancer Care Outcomes Research and Surveillance (CanCORS) study, patient's beliefs regarding the nature of palliative chemotherapy was investigated. The CanCORS study is a national, prospective, observational cohort study, which enrolled patients with newly diagnosed lung or colorectal cancers. Of the cohort, which included approximately 10,000 patients, the authors presented data on 1193 patients. These were patients with newly diagnosed Stage IV lung or colorectal cancer who opted to receive chemotherapy. They were surveyed by professional interviewers regarding their beliefs about the effectiveness of chemotherapy. The surveys were conducted 4 to 7 months after the diagnosis. Surrogates were interviewed in the case of a patient being too ill to be interviewed or who had died.

An item adapted from the Los Angeles Women's Health Study was used to assess responses regarding the effectiveness of chemotherapy. Patients were asked how likely they thought chemotherapy would "help you live longer, cure your cancer, or help you with problems you were having because of cancer." Responses were rated as "very likely," "somewhat likely," "a little likely," "not at all likely," or "don't know."

Patients were also asked about physician communication using the sum of five items derived from the Consumer Assessment of Healthcare Providers and Systems (CAHPS). In assessing physician communication, patients were asked "How often did your doctors... listen carefully to you, explain things in a way you could understand, give you as much information as you wanted about your cancer treatments (including potential benefits and side effects), encourage you to ask all the cancer-related questions you had, and treat you with courtesy and respect." This item was scored 0 to 100, with higher scores indicating better physician communication, and categorized into tertiles.

Other items assessed by the survey included a measure of physical functioning based on the European Quality of Life-5 Dimensions, a characterization of the patient's role in decision making about chemotherapy, as well as demographic data including age, sex, educational level, race or ethnic group, marital status, and household income. Patients were classified as receiving their care in an integrated network if they were enrolled in the study through the Veterans Affairs, health maintenance organization sites, or through Kaiser Permanente of Northern or Southern California.

The primary outcome evaluated whether patients had an accurate assessment that chemotherapy was not likely to be curative. Responses were considered inaccurate if the patient considered the curative intent of chemotherapy to be "very likely," "somewhat likely," "a little likely," or "don't know." Sensitivity analyses were also performed to analyze the effect of including "don't know" or refusal to answer as accurate, or the effect of only classifying responses of "very likely" to be inaccurate.

In all, the large majority of patients gave inaccurate responses with 69% of lung cancer patients and 81% of colorectal cancer patients

**\*Corresponding author:** Dana M Chase, Division of Gynecologic Oncology, University of Arizona Cancer Center at St. Joseph's Hospital and Medical Center 500 W. Thomas Rd, Ste 600 Phoenix, AZ 85013, USA, Tel: 602-406-7730; Fax: 602-798-0807; E-mail: [Dana.chase@chw.edu](mailto:Dana.chase@chw.edu)

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giving answers that were not consistent with the understanding that chemotherapy was unlikely to be curative. Colorectal cancer patients were more likely to believe chemotherapy to be effective in all outcomes measured. Nonwhite race or ethnic group was strongly associated with inaccurate beliefs with an odds ratio of 2.82 for Hispanic patients, 2.93 for Black patients, and 4.32 for Asian or Pacific Islander patients. Receiving care in an integrated network was protective as patients were less likely to provide inaccurate responses (OR 0.70). There was a strong inverse association between education level and providing an inaccurate response, with individuals with less than a high school education being more likely to provide inaccurate responses as compared to those having a high school education or above. Interestingly, patients were less likely to provide inaccurate responses if they reported lower scores for physician communication. Functional status did not correlate with the likelihood of an inaccurate response, nor did the assessment of the patient's role in decision-making.

## Discussion

The results of this study are quite surprising and bring up several key issues in the treatment of patients with advanced cancers. That individuals with advanced lung and colorectal cancers are very likely to hold expectations that palliative chemotherapy will cure their disease or extend their life is unexpected. The authors note these results are contradictory to what has been found in previous studies. However, those studies are smaller in size and most were conducted at tertiary centers. Moreover, items in those studies used dichotomous rather than probabilistic responses. This study surveyed a large cohort of patients across the nation, in several different types of healthcare settings, meaning the results may be more generalizable. This is one of the main strengths of this study.

The main weakness of the study, which was addressed by the authors, is that there may be some social-desirability bias, which would lead patients to provide more optimistic responses than what they actually believed. They attempted to minimize this by informing patients that their responses would not be shared with their providers and by using well-trained interviewers adhering to a standard script. However, as with any survey, this cannot be completely avoided.

This study cannot accurately determine whether the misunderstanding regarding the effectiveness of chemotherapy is due to inaccurate or inadequate counseling by the patient's provider, or whether the patient truly is able to understand the information they are provided with. Previous studies have shown, however, that physicians tend to overestimate patient survival by as much as 30%, and prognosis by as much as five-fold, even when attempting to give an accurate assessment [2]. Moreover, although a physician may be able to accurately predict a patient's survival, he or she may not always disclose it to the patient. One survey of physicians reported that they only disclose their actual predicted prognosis to patients 37% of the time [3]. This survey was not able to document the specific discussions between the providers and patients in order to determine the exact etiology behind the misunderstanding. However, education level of the patient did also appear to play a role, as patients with less than a high school education were much more likely to respond that chemotherapy was "very likely" to cure their disease. Therefore, the etiology may be multifactorial.

Another key factor is whether patients who truly do understand that chemotherapy is not likely to cure their disease actually feel comfortable to acknowledge that fact, and admit it in an interview. These results are not able to determine what role denial may play in patient's responses, or whether patients prefer to maintain positive

beliefs about chemotherapy, but are unwilling to admit to not being able to be cured. Cultural factors likely have a strong influence on patient's responses as well, as nonwhite respondents, including Hispanics, African Americans, and Asian or Pacific Islanders were much more likely to provide inaccurate responses. What effect health disparities have on these responses is also yet to be determined.

Probably the most interesting finding in this study was that patient's responses were inversely related to ratings of physician communication. Patients who believed chemotherapy to be effective in treating their cancer were more likely to rate communication with their physician more favorably. The authors hypothesize that patients may perceive physicians as better communicators when they convey a more optimistic view of chemotherapy. In contrast, physicians who perhaps were more honest or direct about the effectiveness of chemotherapy were not viewed highly in regards to communication. This brings up an ethical discussion in how physicians should balance counseling patients about the palliative nature of chemotherapy in treating advanced cancers versus maintaining good relationships with patients. It is important that patients are counseled appropriately when the decision to proceed with palliative chemotherapy is made. Patients who do not understand the palliative nature of their chemotherapy cannot truly provide informed consent to their treatment. Undergoing chemotherapy may not be completely in line with the patient's preferences should they truly understand that therapy would not be effective in curing their disease. This may also be an obstacle in providing appropriate end-of-life care.

The results of this paper generate several interesting research questions. It is critical to ascertain whether these results can be generalized to patients with advanced gynecologic cancers. For instance, in ovarian cancer, the large majority of patients are diagnosed at an advanced stage. Though many patients respond to first-line therapy, most patients will eventually experience a recurrence of their disease, at which time the treatment is often less effective. With some exceptions, advanced or recurrent ovarian cancer is not curable and the median survival in these patients is 3 to 4 years [4]. Treatment in these patients may include surgical management and multiple regimens of chemotherapy, which may be associated with various toxicities and profound effects on QOL. It would be beneficial to know if patients with advanced ovarian cancer have a similar level of misunderstanding that palliative therapies would be effective in leading to cure or substantial survival benefit. It would also be interesting to contrast patients' ratings of physician communication and their beliefs in regard to palliative treatments when they are under the care of a gynecologic oncologist, in order to assess if there are any differences in regard to the physician's specialty.

Further exploration of the link between patient's ratings of physician communication and level of understanding of the palliative nature of chemotherapy would be another interesting direction for future research. Specifically, to assess whether there are differences in QOL based on patient's perceptions regarding the effectiveness of chemotherapy and their ratings of physician communication; whether the understanding of the incurable nature of a patient's disease affects their QOL and their satisfaction with the treating physician. The balance between accurately conveying a patient's prognosis and expectations of palliative treatment and maintaining a therapeutic patient-physician relationship should be explored.

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