Psychosocial Consequences of Cancer Chemotherapy for Elderly Patients

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The purpose of this study was to determine whether elderly patients receiving cancer chemotherapy experience more emotional distress, difficulty with side effects, and disruption in activities than younger patients. A sample of 217 patients receiving initial chemotherapy treatment for breast cancer or lymphoma was interviewed several times over the first 6 months of treatment. Patients ranged in age from 19 to 83. Included in the interviews were questions on presence, duration, and severity of side effects; response of disease to treatment; and 0–10 ratings of emotional distress, difficulty, and life disruption due to chemotherapy. Information on drugs given, doses, and schedules was obtained from medical charts. In general, elderly patients reported no more difficulty with treatment or emotional distress than did younger patients. This general pattern held across disease types, with some exceptions. These results, combined with previously published studies on the physiological effects of chemotherapy in the elderly, indicate that aggressive treatment should not be withheld from older patients simply because of their age.

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The past 15 years have seen a substantial increase in the variety of chemotherapeutic agents used to treat cancer and a decrease in morbidity for several forms of this disease [1]. There have been improvements in survival for aggressively treated cases of lymphoma [2], breast cancer [3], and leukemia [4]. More aggressive treatment, however, has raised questions about trade-offs between the quality and quantity of life. Are the side effects of treatment, such as hair loss, nausea and vomiting, fatigue, tiredness, and weight gain, worth the gains in months or years of living that are often only partially free of disease? This question is more frequently raised for elderly patients, over 65 or 70, whose remaining years are limited in number and may already be reduced in quality due to lessened physical and mental competence, loss of family and friends, and limited economic resources.

Cancer is largely a disease of the elderly. While 21 percent of all deaths in the United States are due to cancer, the mortality rate per 100,000 persons is 12 times greater for persons over 65 than for the younger age groups; fully half of the deaths in persons 76 years of age are due to cancer. If one looks at morbidity, half of the total morbidity from cancer appears in the over-65 age group, although this group comprises only 11 percent of the population [5]. Indeed, the elderly represent that portion of the population with the largest burden of all chronic diseases.

It is suspected that many family practitioners and internists are reluctant to refer older patients for evaluation and treatment by oncologists [6], and that many oncologists are reluctant to subject older patients to highly aggressive chemotherapy regimens [7]. Thus emerges a paradox: cancer is to a great extent a disease of the elderly; yet it is the elderly who are being denied potentially helpful treatments (if these suspicions are true).

Does subjecting elderly patients to aggressive chemotherapy have positive or negative consequences? The answer to this broad question depends upon answers to specific questions such as the following:

1. Is the natural history of cancer different in the elderly?
2. Do cancers exhibit the same response rates in the elderly as in younger patients?
3. How severely does treatment disrupt or destroy normal physiological functioning in the elderly, and can the elderly patient tolerate such disruption?
4. Can the elderly patient tolerate the treatment at a psychological and social level, or is the treatment unwarranted because

the distress and disability it generates destroys the quality of life of the elderly patient?

Data on the first three of these questions suggest that it is premature to conclude that chemotherapy treatment is unjustified for the elderly. Rates of disease progression appear to be equally rapid in older and younger patients [8]. Treatment appears to be equally effective in controlling disease progression in both the elderly and the young [9,10]. Older patients appear to tolerate the physiological impact of treatment as well as younger patients do [11,12], except for the elderly patients' reduced tolerance for drugs that have an adverse effect on kidney function [12].

More studies are being conducted on the biological effects of chemotherapy in the elderly, and differences beween older and younger patients may yet be found. However, if the present data showing no differences between older and younger patients are replicated, decisions to treat or not treat elderly patients with cancer may depend on the psychological and social consequences of chemotherapy.

It is not clear whether one should expect the psychological and social consequences of chemotherapy to be more severe or less in older patients. Younger patients, on average, are physically stronger, less likely to have other illnesses, less likely to have mental impairments, and more likely to have relatives and friends available for support than are elderly patients. Although little data are available, these factors might be expected to result in more adverse psychosocial consequences of chemotherapy treatment in the elderly. On the other hand, elderly patients are less likely to have pressing job and family demands, more likely to have experienced chronic illnesses and to have learned ways of coping with them, and more likely to accept cancer as a natural occurrence at their stage of life. These factors might lead to fewer negative psychosocial consequences of cancer treatments in the elderly.

This paper addresses two questions regarding the psychological and social consequences of chemotherapy in old versus young patients:

1. After selection of treatment programs, do older patients receive the same drugs, drug doses, and treatment schedules as younger patients?
2. During treatment, do older patients report higher or lower levels of emotional distress, disruption in life, and difficulty in dealing with chemotherapy than younger patients?

The data reported here are from a longitudinal study of patients' adaptation to cancer chemotherapy. The study was not originally

designed to assess the effect of age on adaptation to treatment, so the sample was not selected specifically on the basis of age. However, age of the study participants was available from the medical charts, and a wide age range was represented in the study sample. We were thus able to examine the effects of age on several variables reflecting psychological adaptation to chemotherapy.

METHODS

SAMPLE

Two hundred thirty-eight patients who were beginning cytotoxic chemotherapy over an 18-month period were recruited for this study. The sample represented a consecutive series of patients starting chemotherapy from June 1980 to February 1982, at University Hospitals and Clinics, Dean Clinic, Jackson Clinic, and Quisling Clinic in Madison, Wisconsin, and the Marshfield Clinic in Marshfield, Wisconsin. Eligibility criteria included: over 18, receiving chemotherapy for the first time, a primary diagnosis of breast cancer or malignant lymphoma, fluent in English, and mentally competent to give consent and to understand interview questions. Approximately 89 percent of the eligible patients were asked to participate in the study (the remainder were missed because of schedule conflicts or decisions on the part of the medical staff that patients should not be interviewed); 91 percent of those contacted agreed to participate. Table 1 presents demographic data on the study participants.

PROCEDURES

Chemotherapy was typically given in 3- , 4- , or 5-week "cycles" which included intravenous and/or oral drug administration in the early part of the cycle and a "rest period" in which no drugs were given in the later part of the cycle. For example, a common regimen for breast cancer consisted of intravenous methotrexate and 5-fluorouracil on days 1 and 8 of a 28-day cycle, oral cyclophosphamide on days 1–14, and no drugs on days 15–28. Choice of individual regimens was on the basis of institutional and physician preference.

Each patient was scheduled to take part in five structured interviews over the first six monthly cycles of treatment. Interviews were conducted just before treatment began, after each of the first three cycles of chemotherapy, and after the sixth cycle. In the latter four interviews (conducted when the patient came to clinic to start a new

Table 1: Demographic Information on Study Sample

Diagnosis	
Lymphoma (including Hodgkins)	$N = 71$
Breast cancer (adjuvant therapy)	$N = 106$
Breast cancer (metastatic)	$N = 61$
Sex	
Male	$N = 44$
Female	$N = 194$
Marital status	
Married	$N = 176$
Widowed	$N = 27$
Divorced or separated	$N = 17$
Single	$N = 10$
(Missing)	$N = 8$
Age	
Range	19–83
Overall mean	51.7
Mean (lymphoma)	50.9
Mean (adjuvant breast)	48.4
Mean (metastatic breast)	57.6

cycle), patients were asked about the presence, duration, and severity of common side effects, efforts to cope with the side effects, response of the disease to treatment, presence of conditioned aversion reactions, wishes to quit treatment, and effects of the experience on family and friends. At the end of each interview, patients rated the following items on 0–10 ("none"–"extreme") rating scales: difficulty of treatment, emotional distress due to chemotherapy, emotional distress due to the cancer itself, and worry about cancer. In two of the interviews, patients also rated the extent to which chemotherapy had disrupted their work and social activities on the same 0–10 scale.

Not all of the 238 patients who were recruited for the study were available for follow-up at each scheduled interview. Twenty-one patients dropped from the study prior to the second interview because of death, refusal to be interviewed, or other reasons, and thus could not be examined on measures of side effects, distress, etc. Of the remaining 217 patients, 21 were randomly assigned to be interviewed only after the sixth cycle to determine whether repeated interviewing introduced biases in recall. (No biases were found.) A total of 180 subjects remained in the study for the last interview. The set of 58 dropped patients consisted of: 14 patients who had moved or quit therapy; five who were too sick to be interviewed; 20 who refused to be interviewed;

Table 2: Average Number of Drugs Received in the First and Sixth Treatment Cycles for Each of Four Age Groups

	Cycle 1			
Age	*Lymphoma and Hodgkins Disease (N = 66)*	*Breast (Metastatic) (N = 59)*	*Breast (Adjuvant) (N = 103)*	*Total* (N = 228)*
19-49	3.63	5.10	3.87	3.93
50-59	3.40	4.14	4.18	3.97
60-69	3.56	4.11	4.18	3.96
70-83	3.25	3.33	4.00	3.37†
	Cycle 6			
Age	*Lymphoma and Hodgkins Disease (N = 55)*	*Breast (Metastatic) (N = 42)*	*Breast (Adjuvant) (N = 91)*	*Total (N = 188)*
19-49	3.38	4.44	3.71	3.69
50-59	3.31	3.85	4.14	3.83
60-69	3.23	4.08	4.00	3.76
70-83	2.80	2.86	4.00	3.00

*Total is greater than 217, because the data for the first cycle include data from patients who did not complete later interviews.
†No statistically significant differences due to age were found.

16 who had died; and three who were missing for other reasons. Additionally, a small number of patients gave uncodable answers to some questions during the interviews, causing the total *N* in the tables that follow to vary somewhat in each interview.

RESULTS

As a first step of analysis, it was necessary to determine whether patients at different ages were actually receiving comparable treatments. Since multidrug regimens are generally (although certainly not always) more toxic than single-drug regimens, the number of drugs received was examined for four patient age groups: 19-49, 50-59, 60-69, and 70-83. As indicated in Table 2, the number of drugs received by patients in the four age groups did not differ for the sample as a whole either at the start of therapy or at the sixth cycle of treatment. Within the metastatic breast cancer group, there was a trend for older patients to receive fewer drugs, but the age differences were not statistically significant at either Cycle 1 or Cycle 6.

An examination of the specific drug regimens given to patients in

each age group showed no trends indicative of milder regimens for older patients. Most regimens were not given any more or less frequently to one age group than to any others. One exception to this pattern occurred in lymphoma patients, where the MOPP (nitrogen mustard, vincristine, prednisone, procarbazine) regimen was given most frequently to younger patients (for Hodgkin's disease), and the COPA (cyclophosphamide, vincristine, prednisone, adriamycin) regimen was more frequently given to patients over 60. Since these regimens have similar patterns of toxicity, there appeared to be no substantial difference in the toxicity of regimens for lymphoma patients of different ages. Another exception occurred in the metastatic breast group, where a toxic, multidrug regimen being developed locally was given only to patients under 50. Since only three patients in our study received this regimen, the biasing effects of presence of that treatment in only one age group were not deemed serious.

An examination of the actual drug doses received by patients in various age groups indicated a general comparability of doses, but some trends for smaller doses in patients over 70. Table 3 presents a summary of this analysis. The drugs listed in Table 3 are those which were given to at least 21 patients (10 percent of the sample). The drugs were classified into three categories, based on the Day 1 dose of a given cycle:

Category 1. The oldest patients (over 70) received less than 75 percent of the dose given to the youngest patients (under 50).

Category 2. Doses did not vary by more than 25 percent across the four age groups.

Category 3. The youngest patients received less than 75 percent of the doses given to the oldest patients.

For simplicity, Table 3 indicates results only for the first and sixth treatment cycles; patterns in all other cycles were similar. As indicated in Table 3, most drugs were given in equal doses to all age groups. Intravenous Cytoxan, methotrexate, and (in Cycle 6) 5-fluorouracil were given in reduced doses to older patients; prednisone was given in higher doses to older patients. Specific regimen differences in older and younger patients (i.e., COPA versus MOPP) seem to account for these differences, as not all regimens containing Cytoxan or prednisone include the same dose.

It is not likely that physical differences between the older and younger patients were responsible for dose differences. Patients'

Table 3: Common Chemotherapeutic Agents Listed According to Whether the Oldest Patients (over 70) in This Study Received Smaller, the Same, or Larger Doses Than the Youngest (under 50) Patients

	Drugs in Which Oldest Group Received 75% of Dose for Youngest Group	*Drugs in Which Doses Did Not Differ by More Than 25% Across Groups*	*Drugs in Which Youngest Group Received 75% of Dose for Oldest Group*
Cycle 1	Cytoxan (i.v.) Methotrexate	Adriamycin Cytoxan (p.o.) 5-fluorouracil Halotestin Tamoxifen Vincristine	Prednisone
Cycle 6	Cytoxan (i.v.) 5-fluorouracil Methotrexate	Adriamycin Cytoxan (p.o.) Tamoxifen Vincristine	Prednisone

weights and white blood counts, two important determinants of dose, did not differ across age groups. Patients over 70 were more likely than younger patients to have had previous radiotherapy or hormonal therapy, and their time since diagnosis was longer. However, these differences were primarily a reflection of a greater number of patients with metastatic breast cancer in the older ages and were not, in and of themselves, grounds for higher or lower drug doses.

EFFECTS OF AGE ON NUMBER OF TREATMENT SIDE EFFECTS

Since the number of drug-induced side effects experienced provides one of the most robust predictors of treatment distress in this setting [13,14], we examined the incidence of side effects across age groups. For each of the last four interviews, patients indicated whether or not they had experienced each of 21 different side effects (e.g., hair loss, nausea, fatigue, hot flashes) during the previous cycle. The number of side effects experienced was negatively correlated with age at each point in time, although these correlations were all weak: -.184 for Cycle 1; -.141 for Cycle 2; -.071 for Cycle 3; and -.085 for Cycle 6.

Table 4 depicts the nature of these relationships by showing the mean number of side effects for each of the four age groups. In general, there was no difference in the number of side effects across age through

Table 4: Average Number of Side Effects Experienced by Patients in Four Different Age Groups

Age Group	*Cycle* 1	2	3	6
19-49	4.86	4.26	4.18	4.59
(*N*)	(85)	(78)	(76)	(80)
50-59	4.81	3.87	4.36	5.00
(*N*)	(48)	(47)	(45)	(46)
60-69	4.42	4.20	4.45	4.63
(*N*)	(43)	(40)	(38)	(41)
70-83	3.36	2.77	2.69	2.64
(*N*)	(14)	(13)	(13)	(11)
Mean	4.64	4.03	4.17	4.58
(*N*)	(190)	(178)	(172)	(178)
Significance of age differences (*F*-test with diagnosis as other factor)	.088	.062	.039	.036
Correlation between age and number of side effects	-.184	-.141	-.071	-.035
(*p*-value)	(.006)	(.030)	(.178)	(.130)

age 69. However, the oldest group reported *fewer* side effects than the other three groups, especially during Cycles 3 and 6. Using an analysis of variance with diagnosis as a blocking factor, number of reported side effects was found to differ significantly across age groups for two cycles [$F(3,160) = 2.86$, $p < .05$ for Cycle 3; $F(3,166) = 2.91$, $p < .05$ for Cycle 6]. There were no interactions between age group and diagnosis, indicating that the age difference was constant across disease groups.

EFFECTS OF AGE ON PSYCHOLOGICAL AND EMOTIONAL OUTCOMES

Table 5 presents the correlations beween age and six of the 0-10 rating scales patients completed at the end of the interviews. The rating scales included in Table 5 are: "difficulty" of chemotherapy, emotional distress due to chemotherapy, worry about cancer, emotional distress due to cancer, disruption in work, and disruption in social activities. In all cases, a rating of "0" represented no distress, difficulty, disruption, or worry. In nearly all cases, there was a significant negative relationship between age and various ratings—that is, older patients reported significantly *less* distress, difficulty, disruption, and worry than younger patients. The absolute magnitude of the correlation was small, indica-

Table 5: Correlations Between Age of Patient and Ratings of Difficulty, Emotional Distress, Disruption, and Worry

	Cycle			
Rating Scale	*1*	*2*	*3*	*6*
Difficulty, chemotherapy	-.14*	-.27‡	-.19†	-.15*
Distress, chemotherapy	-.20†	-.23†	-.27‡	-.13
Distress, cancer	-.13*	-.15*	-.27‡	-.09
Worry, cancer	-.19†	-.21†	-.23†	-.04
Disruption, work	—	-.19*	—	-.13
Disruption, social	—	-.10	—	-.16*

*$p < .05$.
†$p < .01$.
‡$p < .001$.

Table 6: Distress and Difficulty Ratings by Age Group

	Cycle							
	1		*2*		*3*		*4*	
Age Group	*Dif**	*Dis*†	*Dif*	*Dis*	*Dif*	*Dis*	*Dif*	*Dis*
19-49	3.66	3.43	4.18	3.36	4.29	3.81	4.61	3.66
50-59	3.67	2.96	3.13	2.93	3.07	3.00	4.42	3.32
60-69	3.51	2.38	3.39	2.19	3.86	2.67	4.21	3.18
70-83	1.71	2.15	1.75	1.92	2.36	1.36	1.57	1.71
Statistical significance of difference between age groups (p-value from overall F-test)	.05	ns‡	.006	ns	.05	.05	.04	ns

**Dif* is 0-10 rating of how difficult chemotherapy had been during that cycle.
†*Dis* is 0-10 rating of how much emotional distress patient had experienced due to chemotherapy during that cycle.
‡ns = not significant.

ting that age accounted for only 2-5 percent of the variance in each rating.

Visual examination of the scatterplots for each correlation did not show any obvious concentration of the relationships in particular age ranges. However, a breakdown of the distress and difficulty ratings by age group (Table 6) shows that most of the decrease in these ratings with age occurred in the oldest (over 70) group. The absence of significant Age Group by Diagnosis interactions indicated that the age effects were generally consistent across diagnostic groups.

Because the incidence of side effects varied across ages, and because the number of side effects correlated highly with 0–10 ratings (up to .45 for the ratings of treatment distress, difficulty, and disruption; slightly less for distress and worry due to cancer), the correlations between age and the various rating scales were recalculated, controlling for the number of side effects experienced. These correlations were only slightly smaller in magnitude than the zero-order correlations, and all remained negative. Thus, age differences in the number of side effects experienced accounted for only a trivial portion of the negative relationship between age and distress, difficulty, and disruption.

In another publication [14], we have argued that older patients may adjust more easily to chemotherapy because they have learned how to live with problems like nausea, fatigue, or hair loss in course of other illnesses or through normal aging effects. According to this argument, specific treatment side effects which often lead to distress in young patients do not lead to distress in older patients, or do so in a lesser degree.

To examine this issue in the current study, we divided the patients into four age groups, as previously described, then examined the incidence of two of the most common and distressing side effects, nausea and fatigue, in each age group. As indicated in Table 7, younger patients were more likely than older patients to report nausea and fatigue. Data for Cycles 1 and 6 are shown; the same patterns are seen in Cycles 2 and 3. However, when the difficulty and emotional distress ratings were analyzed in a 2(presence/absence of nausea) × 2(presence/absence of fatigue) × 4(age group) analysis of variance design, there was only 1 instance out of a possible 16 where an interaction between age and nausea or fatigue had a significant effect. That is, the presence of nausea or fatigue seemed to be equally distressing in younger and older patients.

Finally, we examined the incidence of anticipatory nausea or vomiting as a function of age. This nausea or vomiting, which occurs *prior* to drug administration and is psychogenic in origin, is considered by some to be evidence of a conditioned emotional (aversion) reaction to chemotherapy [15,16]. As indicated in Table 8, there is a significantly higher incidence of anticipatory nausea or vomiting in the younger patients than in the older patients. The data in Table 8 represent the presence or absence of anticipatory nausea at any time in the six treatment cycles; the pattern of results was the same if each cycle was examined individually.

Table 7: Incidence of Nausea and Fatigue in Each of Four Age Groups

	Cycle 1				*Cycle 6*			
	Nausea		*Fatigue*		*Nausea*		*Fatigue*	
Age Group	*Yes* (N)	*No* (N)	*Yes* (N)	*No* (N)	*Yes* (N)	*No* (N)	*Yes* (N)	*No* (N)
19-49	64	21	51	23	57	23	52	28
50-59	30	18	28	20	35	11	33	13
60-69	27	16	22	21	22	19	22	19
70-83	7	7	5	9	1	10	4	7
	$X_3^2 = 5.28$, ns*		$X_3^2 = 3.85$, ns		$X_3^2 = 21.17$, $p < .001$		$X_3^2 = 6.45$, $p < .10$	

*ns = not significant.

DISCUSSION

The results of this study indicate that elderly patients do not report more emotional distress, life disruption, or difficulty with chemotherapy than do younger patients. In fact, where differences do exist, it is consistently the younger patients who report more severe problems on the various rating scales. Younger patients report more nausea and fatigue than older patients, and have a higher incidence of anticipatory nausea and vomiting.

Before we conclude that elderly patients adapt as well or better to chemotherapy than younger patients, some other explanations for the data must be considered. First, it could be argued that the scales are not sensitive measures of the kinds of problems elderly patients have in treatment and, therefore, that they do not pick up real differences. However, the sensitivity of the measures is attested to by their ability to detect differences due to: presence of specific side effects [13]; the number of side effects experienced [14]; success or failure in coping with side effects [13]; and patients' perceptions of how well the disease is responding to treatment [13]. Also, a simple increase in sensitivity of the existing scales would not be likely to show negative psychosocial effects in the elderly, since nearly all of the nonsignificant trends run in the opposite direction. Conceivably, other scales or measures exist, which would detect negative effects in the elderly—but it is not clear what those scales should measure. The validity of the "emotional distress" scale as an overall index of adjustment to treatment is reflected in its high correlations with ratings by medical staff and interviewers of patients' tolerance for treatment [13].

Table 8: Percentage of Patients with Anticipatory Nausea as a Function of Age

Age Group	*Had Anticipatory Nausea at Least One Cycle (%)*	*Had No Anticipatory Nausea Through Six Cycles (%)*	*Had No Anticipatory Nausea Until Off Study at Less Than Six Cycles* (%)*	*Other (Uncodable Response, Missing) (%)*
19–49	54.1 (N = 52)	36.4 (N = 36)	7.3 (N = 7)	1.0 (N = 1)
50–59	39.8 (N = 21)	49.1 (N = 26)	7.5 (N = 4)	3.8 (N = 2)
60–69	24.0 (N = 12)	62.0 (N = 31)	14.0 (N = 7)	—
70–83	13.3 (N = 2)	73.3 (N = 11)	13.3 (N = 2)	—

$X^2_6 = 18.47, p < .01$ (ignores "Other" column)

*This group included patients who died, had therapy discontinued, refused some of the latter interviews, or moved and were lost to follow-up.

It could also be argued that the data merely indicate an awareness or reporting bias on the part of older patients—either that they forget about problems and do not report them or that they try to minimize problems when they come up in the context of an interview. Since the data in this study were based on patients' self-reports, it was impossible to validate patients' reports of side effects and ratings of subjective feelings against an objective criterion. Correlations between patients' ratings and physicians', nurses', or interviewers' ratings, or notes in medical charts, would not *prove* the validity of patients' reports, since all of those ratings would be based in some degree on patients' verbal reports. We can point out that the data reported here are consistent with previously reported age differences in the incidence of anticipatory nausea and vomiting in a different sample, at a different institution, using somewhat different methods of data collection [15]. The patterns of data also match our clinical experience of having either interviewed or treated hundreds of patients. We recognize that the question of response bias cannot be laid to rest entirely with the data we have available, and it will be incumbent on us, or other investigators, to replicate these findings with more objective measures. Given the subjective nature of many of the clinically important indicators of adaptation to treatment, we are not sure what those objective measures would be.

Finally, it could be argued that the age differences in side effects experienced and emotional reactions to treatment merely reflect the dose differences summarized in Table 3. There are three possible replies to this argument. First, to the best of our knowledge, no standard policies in effect during this study excluded elderly patients from toxic treatment protocols or automatically reduced doses for elderly patients. Starting doses were calculated on the basis of body surface area with a possible reduction in methotrexate dose if patients' creatinine clearance was poor. Second, the fact that dose differences existed at the beginning of therapy indicates that the differences were not due to physicians' decisions to modify doses because of toxicity experienced by the elderly in early cycles—differences in dose existed before any toxicity was experienced. Third, the doses of several toxic drugs, including adriamycin, were equal in the four age groups.

When treatment is given, there seems to be little reason for automatically giving reduced doses to elderly patients. As others [8] have pointed out, the likely result of this practice is to expose elderly patients to most of the toxicity of full-dose treatment, but little of the therapeutic benefit. The data reported here, taken with recent reports on the physiological consequences of chemotherapy in the elderly [12], sug-

gest that elderly patients may be able to tolerate the same doses of drugs (per unit body surface area) as younger patients.

If these results can be replicated elsewhere, it would seem that aggressive chemotherapy treatments should not be withheld from elderly patients simply on the basis of their age. The specifics of a given case would always guide treatment decisions for individual patients, but reasons other than patients' "quality of life" would have to be offered to justify the exclusion of elderly patients from cooperative group protocols and the avoidance of aggressive treatment for all patients over a given age.

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