

COMMON TOXICITIES OF CANCER CHEMOTHERAPY

K S Khoo, P T Ang, A G Lim

ABSTRACT

Sixty cancer patients who were receiving chemotherapy at an outpatient Oncology Centre were surveyed for their views on a list of treatment-related toxicities. The severity of each toxicity was assessed using a visual analogue scale. Sixty percent of patients felt that the overall toxicity was acceptable. Ten percent felt like giving up. Problem with venous access was named the worst toxicity by 37% of patients, followed by nausea and vomiting (19%), and long waiting time (11%). Male patients tended to tolerate chemotherapy better. The female patients were significantly more affected by hair loss than their male counterpart. Better understanding of the toxicities of chemotherapy as perceived by the patients themselves allows them to take appropriate measures in improving their quality of life.

Keywords: chemotherapy, toxicity, venous access, hair loss, quality of life

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INTRODUCTION

Cancer is a leading cause of morbidity and mortality in Singapore. The disease is often perceived by the lay and medical community as one where treatment is associated with significant toxicities. This is especially where chemotherapy is concerned. As there is an increasing role for chemotherapy as part of a combined modality therapy with surgery and radiation, it is important to place these fears of chemotherapy-induced toxicities in correct perspective.

Many patients and some doctors alike have the misconception that chemotherapy is invariably associated with intractable vomiting, complete and irreversible alopecia and marked deterioration of general well-being. Such beliefs often prejudice patients from accepting chemotherapy. While some patients do experience severe side-effects, others tolerate chemotherapy remarkably well.

Rather than base one's understanding on hearsay and biased accounts, we felt that it was necessary to survey patients who were currently undergoing chemotherapy to understand more about common acute and subacute toxicities during chemotherapy.

PATIENTS AND METHOD

Sixty consecutive cancer patients currently on treatment at an ambulatory chemotherapy treatment facility were interviewed by a registered nurse. The survey was conducted while the patients were waiting for their turn to receive chemotherapy. Since this was conducted at an ambulatory treatment facility, all the patients were receiving chemotherapy as outpatients. Patients who were being treated for the first time were not included in the study.

The selected patients were given a questionnaire to fill. Patient's age, sex and treatment were recorded. A visual analogue scale was used for the patients to grade the degree of severity of each possible toxicity (Fig 1). Nine toxicities were assessed namely: general (overall how was the chemothera-

Fig 1 - Example of the Visual Analogue Scale

Hair loss									
1	2	3	4	5	6	7	8	9	10
"It's alright"		slight bother		tolerable		horrible		giving up	

Vomiting									
1	2	3	4	5	6	7	8	9	10
"It's alright"		slight bother		tolerable		horrible		giving up	

py), nausea, vomiting, hair loss, loss of appetite, inconvenience of visit, waiting time, venepuncture for blood test and venous access for administration of chemotherapy. As a means of ensuring some degree of consistency in the scoring of severity on the visual analogue, a description was provided to guide the patients: 1 to 2 - "It's alright"; 3 to 4 - slight bother; 5 to 6 - tolerable; 7 to 8 - horrible; 9 to 10 - considering giving up. The patients were asked to rank the toxicities in the order of which one bothered them most. The interviewing nurse also made an assessment of the degree of hair loss the patient had and graded it in terms of none, mild, moderate or severe.

In the analysis, the severity scores were divided into 5 groups, each corresponding to the description given. Mann-Whitney test was used to compare statistical differences between the mean severity scores of male and female patients.

RESULTS

There were 22 males and 38 females with a mean age of 53.4 years and 49.1 years respectively. The proportion of female patients on cisplatin-containing chemotherapeutic regimens was smaller than the males (13% vs 27%) but the difference did not reach statistical significance level ($\chi^2 = 1.94$, $p > 0.10$).

The overall toxicity of chemotherapy was acceptable to the majority of the patients as reflected by 60% of them scoring 6 or less for the item "general". Seventeen patients (28%) felt that it was horrible and 7 patients (11%) were considering giving up. Most of them were little bothered by nausea, vomiting, frequent venepuncture and venous access. This was evidenced by 60% or more of the patients giving a score ≤ 4 in these categories. In contrast, 50% of the patients gave a score of 5 or 6 and another 20% scored 7 or 8 in "waiting time". Venous access for administration of chemotherapy was felt to be a slight bother by 38% of the patients (Fig 2).

Of the 56 patients who responded in the ranking of side-effects, 21 patients (37.5%) named "venous access" as the toxicity that bothered them most (Table 1). Another 11 (19.7%) patients were most bothered by nausea or vomiting and a further 6 (10.7%) patients felt that long waiting time was the worst toxicity. Hair loss and frequent venepunctures were not considered the worst toxicity by any patients.

Department of Medical Oncology
Singapore General Hospital
Outram Road
Singapore 0316

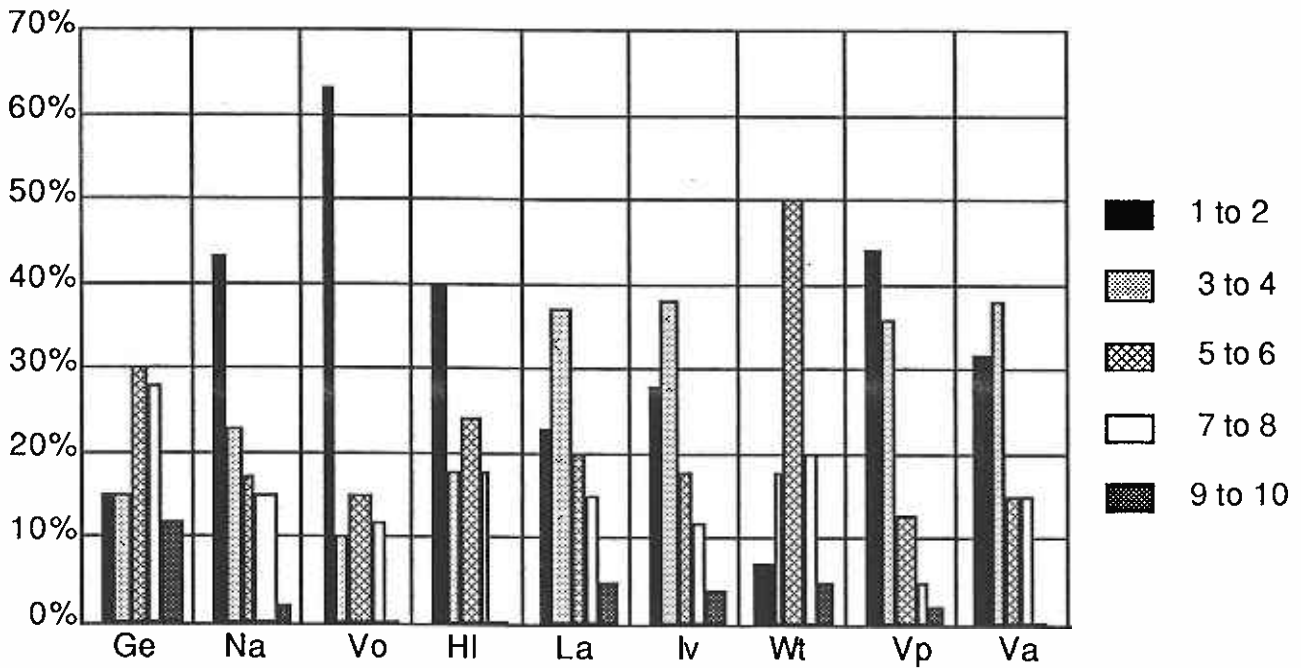
K S Khoo, MBBS, M Med (Int Med), MRCP(UK)
Registrar

P T Ang, MBBS, M Med (Int Med), MRCP(UK), FAMS, FACP
Consultant and Head

A G Lim, RN
Oncology Nurse Specialist

Correspondence to : Dr P T Ang

Fig 2 - Chart showing severity of each "toxicity" assessed.



Ge:general; Na:nausea; Vo:vomiting; HI:hair loss; La:loss of appetite; Iv:inconvenience of visits; Wt:waiting time; Vp:venepuncture; Va: venous access.

Table I - Chart showing percentage breakdown of toxicities ranked as number one.

Toxicities	%
Venous access	37.5
Nausea & vomiting	19.7
Waiting time	10.7
Loss of appetite	8.9
Hair loss	7.1
Others*	16.1

* Comprising a mixed group of symptoms (tiredness, giddiness, sleepiness, social isolation)

In general, females had a tendency to view the same toxicity as more severe compared to the males (Table II). The mean score for the females were higher than the males in all but one (venous access) toxicity assessed. The difference was however only statistically significant in the "general" and "hair loss" categories. Nine males and 27 females were assessed to have moderate to severe hair loss. There was a distinct difference in the way this side-effect was dealt with by the two sexes. Seventy-eight percent of male patients used a cap or a hat to conceal their hair loss whereas 78% of female patients used a wig. Another 20% of the females preferred a scarf.

DISCUSSION

A brief review of the chapter in any oncology text on the toxicities, side-effects and complications of chemotherapy, will strike fear in the hearts of the bravest men. Chemotherapy can potentially cause cerebral dysfunction, cardiomyopathy, pulmonary fibrosis, liver failure, gonadal dysfunction and second malignancy⁽¹⁾. The key-word to note is "potential", that although these are known complications of chemotherapy, these serious side-effects are not common.

Instead of looking at the more serious but rare side-effects, we focused on those that are common and therefore

Table II - Average Scores of Each Toxicity

	Overall	Male	Female	p value*
General	5.9	5.0	6.4	0.02
Nausea	3.8	3.3	4.1	ns
Vomiting	3.0	2.5	3.3	ns
Hair loss	4.0	3.0	4.6	0.008
Loss of appetite	4.5	4.2	4.6	ns
Inconvenience	4.2	3.5	4.6	ns
Waiting time	5.7	5.2	5.9	ns
Venepuncture	3.5	2.8	3.9	ns
Venous access	4.0	4.3	4.0	ns

* The difference between the average for male and female. ns: not significant.

more likely to affect the patients. It is felt that in this way one can better understand the main concerns of the patients and find ways of tackling them.

Nausea and vomiting are side-effects dreaded by many. There are patients who give up potentially curative chemotherapy prematurely because of intractable nausea and vomiting. However, intractable vomiting may become a thing of the past with more potent anti-emetic drugs like 5-HT₃ antagonists. With ondansetron, an example of a 5-HT₃ antagonist, 98% of patients treated with cisplatin at a dose of 100 mg/m² had no nausea or vomiting in the first 24 hours⁽²⁾. It is therefore not surprising that the majority of the patients in our study did not find nausea and vomiting a great bother to them.

In contrast, many patients found the long wait for a blood test, to see the doctor and receive his or her treatment a "major toxicity". The average waiting time for a 'standard' visit to the hospital for chemotherapy is said to be about four hours. Such waiting is not only physically taxing, but psychologically traumatic to the patients. Although waiting is inevitable in a large comprehensive hospital where facilities are shared among dif-

ferent disciplines, much can be done to reduce the waiting to the minimum. A study to look into the problem in greater detail is called for.

It is well-known that gaining good venous access in a patient who has had few courses of chemotherapy can be quite an ordeal. To some it can even be the most painful part of the whole treatment process. In our study, venous access was ranked the worst toxicity by 37.5% of the patients. There are several ways of overcoming this problem. An indwelling venous catheter (eg Hickmann's catheter) or a subcutaneously implanted infusion port are some of the options available. The latter has the advantage of being easier to maintain and cosmetically more acceptable. It is however more costly and is usually indicated when there is a need for long term chemotherapy. Such measures not only ensure easy venous access but also allow blood to be drawn from the catheter and thus obviate the need for repeated venepunctures.

Although the degree of hair loss varies depending on the type and dose of chemotherapeutic agents, some hair loss is almost inevitable in treated patients. Together with other visible changes in physical form, like weight loss and surgical scars, hair loss may serve as a constant reminder that they have cancer. Such 'distortion' of self image can be more distressing than many other toxicities associated with cancer treatment. As a result, some patients become socially withdrawn. As expected, female patients are more affected by hair loss than the males. Unfortunately there is as yet no effective method

of preventing hair loss resulting from chemotherapy⁽³⁾. Nevertheless, it is important not only to reassure the patients that the hair loss is temporary but also help them to deal with the problem by way of bringing to their awareness the different ways of coping with it. This includes methods of concealment like a hat or scarf, and even recommending good wig stylists. This will go a long way in helping them regain self confidence, to live as normal a life as possible, despite on-going therapy.

It is undeniable that chemotherapy may be associated with serious toxicities. While the patients must be adequately informed of these toxicities, it is also important to reassure them that many of the common but bothersome toxicities can be prevented or alleviated. This is particularly so in a situation where the potential for cure or long term remission is high. Future studies should encompass a wider range of toxicities and address specific management issues, perhaps within the context of a larger and more comprehensive assessment of the quality of life in cancer patients.

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For further enquiries, please contact:

The IXth Biennial Scientific Meeting APASL
Suite 11, Ground Floor
Pantai Medical Centre
No. 8, Jalan Bukit Pantai
59100 Kuala Lumpur
Malaysia
Tel : (03) 2821753 or 2821777
Fax : (603) 2821753