Cancer Anemia Survey in Division of Medical Oncology at Siriraj Hospital (CAS)

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Background: *Causes of anemia in cancer patients are multifaceted and include such factors as nutritional deficiency anemia, anemia of malignancy and treatment-related anemia. Chemotherapy, especially a platinum-based regimen, is well recognized to cause anemia. Anemia results in decrease of functional capacity, lower performance status, poor compliance and adverse prognosis. Optimal management of anemia in cancer patients is an essential component of cancer treatment. Previously, there was no information about this condition available in Thailand.*

Objective: *1) To evaluate frequency, characteristics of anemia and treatments of anemia in our cancer patients who received chemotherapy treatment. 2) To identify the factors that influence hemoglobin (Hb) level in cancer patients especially chemotherapy regimens.*

Material and Method: *Patients with diagnosis of solid malignancy who were scheduled to receive chemotherapy for least 4 cycles between June 2006 and December 2007 were included. All enrolled patients' data which included demographics, types and stages of cancer, chemotherapy regimen, Hb at baseline, Hb level before each cycle of chemotherapy and treatment of anemia, were recorded.*

Statistical analysis: *Patients' data were presented in terms of percent, mean or median. Logistic- regression analysis was performed to identify risk factors of anemia in cancer patients.*

Results: *Three-hundred and four patients were enrolled, 233 patients were female and 71 were male. The age of patients varied from 15 to 86 years old. Median age was 52 years old. Hb level at enrollment ranged from 7.7 to 16.1 g/dl, mean baseline Hb was 12.5 g/dl. Incidence of anemia at baseline was 34.5 percent whereas the incidence increased to 61.1 percent after receiving chemotherapy. The incidence of anemia in all patients was not significantly different from that of a subgroup of patients with normal baseline Hb. The patients who received platinum and anthracycline-based chemotherapy developed more anemia than those who received other chemotherapy regimens, with odd ratios of 9.4 (95% CI; 3.1-28.9, $p < 0.001$) and 3.5 (95% CI; 1.4-8.5, $p = 0.005$), respectively. Most anemic patients were asymptomatic; twenty-one out of 214 anemic patients (9.8%) received specific treatment for anemia.*

Conclusion: *Chemotherapy-induced anemia is a common problem found in cancer patients, especially in those receiving platinum-based chemotherapy. Most of the anemic patients had asymptomatic grade I and II anemia. Blood transfusion was the treatment of choice for severe, symptomatic anemia in our hospital.*

Keywords: *Anemia, Chemically induced, Neoplasms, Drug therapy*

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Anemia, usually defined as hemoglobin (Hb) concentration less than 12 g/dl, is a common problem of patients with cancer and is a frequent complication of myelosuppressive chemotherapy. Causes of anemia are multifaceted such as nutritional deficiency anemia, anemia of chronic disease and treatment related anemia. Severity of anemia depends on the extent of disease, chemotherapy drugs, schedule and intensity of therapy administered, as well as whether the patients have received prior chemotherapy, radiation or both. The most common patient's complaints are fatigue and dyspnea on exertion.

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Standard criteria for assessment of therapy induced toxicity of the National Cancer Institute (NCI), version 3.0[1] which defines grades of anemia as follows: grade I (mild), Hb of 10 g/dl to lower normal limit; grade II (moderate), Hb 8-9.9 g/dl; grade III (severe), Hb 6.5-7.9 g/dl and grade IV (life threatening), Hb less than 6.5 g/dl.

Platinum-based chemotherapy is well recognized as a cause of anemia[2]. The highest incidence of anemia requiring transfusion occurs in patients with lymphomas, lung cancer and gynecologic or genitourinary tumors, which are usually treated by platinum-based regimens. The incidence of anemia may be as high as 50-60 percent. Anemia which results in decreased functional capacity and quality of life for cancer patients leads to poor compliance with treatment and is related to poor prognosis[3, 4]. Therefore, optimal management of anemia appears to be an essential component of cancer treatment. Treatment of anemia in cancer patients must be individualized and accompanied by correction or management of simple nutritional deficiencies, underlying infectious or inflammatory processes, hemolytic diseases or occult blood loss. Management of chemotherapy-induced anemia depends on its severity. Treatment options include red blood cell transfusion, erythropoietin administration and specific management for other correctable causes. Severe or symptomatic anemia is treated with red blood cell transfusions, but mild to moderate anemia in patients who received chemotherapy has traditionally been managed conservatively on the basis of the perception that it was clinically unimportant. New data are emerging which demonstrated that chemotherapy-induced anemia has an adverse impact on quality of life which can be improved with erythropoietin treatment[3,4]. Erythropoietin therapy is recommended for patients with chemotherapy-induced anemia when their serum Hb approaches 10 g/dl[5]. However, erythropoietin should be used cautiously because of a higher incidence of thromboembolic complications.

The incidence features of and treatments for anemia in Thai cancer patients are unknown and there is no survey of cancer-related anemia as it occurs in overall cancer population. The purpose of this prospective study is to evaluate characteristics of anemia in cancer patients, including frequency of occurrence, treatment patterns and predisposing factors such as type of cancer, initial Hb level, severity of anemia and effect of chemotherapy. The results of this study may be useful as helping provide basic data about importance and severity of anemia in Thai cancer patients and may help establish future proper management of anemia in cancer patients in Thailand.

Material and Method

Patients

Adult patients (age of 15 years or more) with the diagnosis of solid malignancy, who were treated with systemic chemotherapy and followed in the medical oncology division at Siriraj hospital, Bangkok, Thailand between June 2006 and December 2007 were enrolled. Patients were eligible regardless of disease status or type of cancer treatment. Patients who were enrolled in a clinical trial or who were intended to receive less than 2 cycles of chemotherapy were ineligible.

All patients provided written consent after receiving full information about the survey.

Definitions

The definition of anemia was serum hemoglobin of less than 12 g/dl based on toxicity grading criteria from the National Cancer Institute (NCI) and the European Organization for Research and Treatment of Cancer (EORTC). Anemia was further categorized as grade I (mild): Hb of 10 g/dl to normal limit; grade II (moderate), Hb 8-9.9 g/dl; grade III (severe), Hb 6.5-7.9 g/dl and grade IV (life threatening), Hb less than 6.5 g/dl based on toxicity criteria of the NCI.

The frequency of anemia was defined as the anemia presented at enrollment or at any time during chemotherapy treatment.

The incidence of anemia was defined as the number of patients with normal Hb (>12 g/dl) at enrollment who developed anemia during treatment, or patients with initial Hb less than 12 g/dl in whom a decline of Hb level was subsequently found.

Platinum-based chemotherapy is defined as chemotherapy regimens which consisted of platinum-compound chemotherapy such as cisplatin, carboplatin or oxaliplatin. The rest of the chemotherapy regimens were divided into either anthracycline-based regimen, which consisted of anthracycline, or other regimens, such as fluoropyrimidine, alkylating agents and taxanes.

Methods

All eligible solid cancer patients' data were collected at enrollment, at follow-up visit until the chemotherapy session was stopped and at completion of survey. Enrollment data included demographics, type and stage of cancer, disease status, previous treatment

and complete blood count (CBC) before initiation of chemotherapy.

The data of the patients who received chemotherapy or chemoradiation were collected before each cycle of chemotherapy for a maximum of 8 cycles. The data included CBC, especially Hb level, treatment of cancer, chemotherapy regimen, concomitant radiation, treatment of anemia such as blood transfusion, iron supplement or erythropoietin use, the number of current cycles and reasons for chemotherapy discontinuation.

Malignancies were categorized into groups: lung, breast, gastrointestinal, head and neck cancer, germ cell tumor, sarcoma and others. For disease status, patients were categorized by stage of disease. Previous treatments were recorded with regard to the patients who had received surgery, radiation or previous chemotherapy.

During chemotherapy treatment, anemia was defined according to toxicity criteria of the NCI (common terminology criteria for adverse events version 3.0) as above. Anemia during treatment was identified based on the lowest level of Hb which was recorded, and was used for later analysis.

Subgroup analysis was done. We analyzed the severity of anemia and treatment in non-anemic patients before chemotherapy treatment to identify which chemotherapy regimens had greater influence upon the Hb level and upon the severity of anemia.

This study was a prospective survey intended to track anemia and its management in solid cancer patients. For analysis of anemia, frequency and incidence of anemia was identified and tracked for predisposing factors, such as type and stage of cancer, previous radiation or chemotherapy. The patients were analyzed according to type, stage of cancer, concomitant treatment and chemotherapy regimens (platinum-based, anthracycline-based or others).

The study protocol was approved by the Siriraj Hospital ethic committee.

Statistical analysis

Descriptive statistics were used in this survey. Categorical data and continuous data were presented in terms of percent, median or mean with standard deviation, respectively.

Chi-square was used to compare the categorical data, *i.e* type, stage of cancer and previous treatment among patients that had anemia initially or not. Logistic regression analysis was performed to identify the risk factors of anemia in cancer patients who received chemotherapy. All statistical analyses were performed using computer software (SPSS version 13.0).

Results

Three hundred and four patients were initially recruited in this study according to inclusion criteria as above. All patients were followed and their data were recorded. There were twenty-four patients who received less than four cycles of chemotherapy (3 patients with one cycle, 9 patients with 2 cycles and 12 patients who received 3 cycles). The reasons for unexpected discontinuation of chemotherapy were progression of disease demonstrated by physical exam or imaging studies, loss to follow up or referral to a primary hospital.

Among 304 cancer patients, 233 patients were female and 71 were male. The age ranged from 15 years to 86 years old, with a median age of 52 years old. Hemoglobin level before chemotherapy treatment varied from 7.7 up to 16.1 g/dl. Mean and median baselines Hb level were 12.4 and 12.5 g/dl, respectively. Patients' characteristics were demonstrated in Table 1. The most common cancer was breast cancer (58.6%), followed by colorectal cancer (19.4%) and lung cancer (13.2%), respectively. One hundred and thirty-six patients were diagnosed with stage I or II cancer, which received adjuvant chemotherapy. Twenty percent of enrolled patients were metastatic cancer and received chemotherapy as palliative treatment.

The eligible patients received standard treatment which depended on types and stage of cancer as determined by primary doctors. Most of the patients had undergone surgery for primary treatment and received chemotherapy as adjuvant treatment. Neoadjuvant chemotherapy was considered in patients with locally advanced disease or who needed organ preservation treatment. Two hundred and fifty one patients (86.2%) underwent surgery before systemic chemotherapy for definite treatment or palliative aim. Some of these patients were discovered to have metastatic disease by staging work up before initiation of adjuvant chemotherapy. Nine patients had received palliative radiotherapy before enrollment. Two hundred and eighteen patients (71.7%) received chemotherapy as adjuvant treatment, and 75 patients (24.6%) had palliative chemotherapy for stage IIIb or IV disease. The details of chemotherapies are shown in Table 2.

There were 105 anemic patients (Hb level less than 12 g/dl) at enrollment. Prevalence of anemia at time of enrollment was 34.5 percent. Baseline

Table 1. Characteristics of patients in the cancer anemia survey

Patients' characteristics	Number of patients (%)
Gender	
Male	71 (23.3)
Female	233 (76.6)
Age, years	
Median (range)	52 (15-86)
Mean (SD)	52.1 (11.7)
Baseline hemoglobin, g/dl	
Median (range)	12.5 (7.7-16.1)
Mean (SD)	12.4 (1.3)
Types of cancer	
Breast	177 (58.2)
Lung	40 (13.2)
Gastrointestinal	62 (20.4)
Colorectal	59 (19.4)
Non-colorectal	3 (1)
Head and neck	3 (1)
Germ cell tumor	2 (0.7)
Sarcoma	9 (3)
Others	11 (3.6)
Stage	
1	32 (10.5)
2	104 (34.1)
3	96 (31.5)
4	63 (20.7)
Unknown	9 (0.3)

Table 2. Characteristic of chemotherapy used in this cancer anemia survey

Chemotherapy	Number of patients (%)
Types of chemotherapy	
Adjuvant chemotherapy	218 (71.7)
Neoadjuvant chemotherapy	11 (3.6)
Palliative chemotherapy	75 (24.7)
Chemotherapy regimens	
Platinum-based	68 (22.4)
Anthracycline-based	161 (53.0)
Others	75 (24.6)
Concomitant radiation	
Yes	23 (7.6)
No	281 (92.4)

hemoglobin level ranged from 7.7 to 16.1 g/dl whereas the median Hb level was 12.5 g/dl. Among 199 patients with normal Hb at enrollment (65.4 percent of all patients), baseline means of Hb of patients treated with platinum-based, anthracycline-based and other regimens were 13.3, 13.1 and 13.1 g/dl, respectively. One hundred and eleven out of 197 initially non-anemic patients (56.3%) developed anemia during treatment. Overall incidence of anemia during chemotherapy sessions in patients was 61.1 percent, which was slightly higher than the subgroup with normal baseline hemoglobin (56.3 percent). Prevalence of anemia and cancer types is shown in Table 3.

The frequency of anemia was determined by the number of patients with low Hb value (below 12 g/dl) recorded at least once during survey. Fig. 1 demonstrated the percentage of patients with the level of Hb at enrollment and nadir Hb level during chemotherapy treatment. Two hundred and fourteen out of 304 patients (70.4%) had a hemoglobin level below 12 g/dl at least once during chemotherapy treatment. Thirty-four out of 107 patients with low

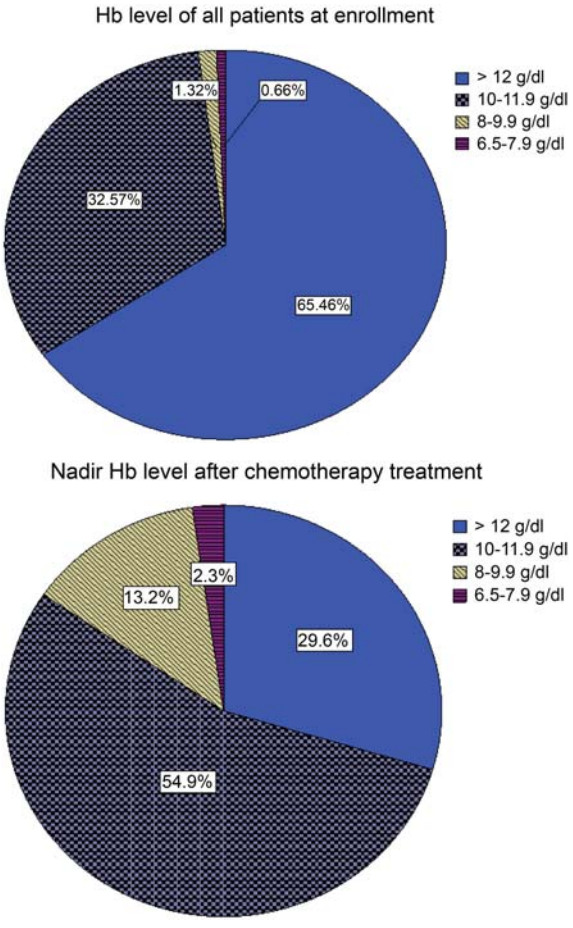

Fig. 1 Baseline Hb level and nadir Hb during chemotherapy treatment in cancer patients received chemotherapy treatment

baseline Hb (31.8%) had stable Hb levels during chemotherapy treatment. Among the 218 early-stage cancer patients who received adjuvant chemotherapy, two-thirds of them were eventually found to have anemia, whereas half of the patients with normal baseline Hb developed anemia during adjuvant treatment. The frequency of anemia was higher in patients who received chemotherapy as neoadjuvant or palliative treatment than in the patients receiving adjuvant treatment. Table 4 showed frequency and incidence of anemia in all enrolled patients and also in the initially non-anemic subgroup.

In our study, 57 out of 68 patients (83.8%) who received platinum-based chemotherapy developed low Hb at least once during treatment. Frequency of anemia in patients receiving anthracycline-based

Table 3. Prevalence of anemia at enrollment and incidence of anemia during treatment stratified by cancer types

Types of cancer	Number of patients with anemia (%)		
	At enrollment (n = 304)	Incidence of anemia in initial non-anemic patients (n = 197)	Incidence of anemia during chemotherapy treatment in all patients* (n =301**)
Breast	50/177 (28.2)	69/128 (53.9)	105/176 (59.6)
Lung	11/40 (27.5)	22/28 (78.5)	30/39 (76.9)
Gastrointestinal	33/62 (53.2)	12/29 (41.4)	30/62 (48.4)
Head and neck	0/3 (0)	2/3 (66.6)	2/3 (66.6)
Germ cell tumor	1/2 (50)	0/1 (0)	1/2(50)
Sarcoma	4/9 (44.4)	3/4 (75)	7/8 (87.5)
Others	6/11 (54.5)	3/4 (75)	9/11 (81.8)
Total	105/304 (34.5)	111/197 (56.3)	184/301 (61.1)

* Defined as patients with normal Hb (> 12 g/dl) at enrollment who developed anemia during treatment or anemic patients at baseline with decline of Hb level; it excluded patients with low baseline Hb and who had stable Hb level during chemotherapy treatment

Table 4. Frequency and incidence of anemia of enrolled patients and patients with initial normal Hb level stratified by chemotherapy use

Chemotherapy	Number of patients with anemia (%)		
	Frequency of anemia in all patients (n = 304)	Incidence of anemia in initial non-anemic patients (n = 197)	Incidence of anemia during chemotherapytreatment in all patients* (n = 301)
Chemotherapy			
Adjuvant	147/218 (67.4)	76/147 (51.7)	121/217 (55.8)
Neoadjuvant	10/11 (90.9)	5/6 (83.3)	8/11 (72.7)
Palliative	57/75 (76)	30/44 (68.7)	55/73 (75.3)
Chemotherapy regimens			
Platinum-based	57/68 (83.8)	33/42 (78.5)	53/67 (79.1)
Anthracycline-based	108/161 (67.1)	67/118 (56.7)	102/159 (64.1)
Others	49/75 (65.3)	11/37 (29.7)	29/75 (38.7)
Concomitant radiation			
Yes	18/23 (78.2)	4/9 (44.4)	10/23 (43.4)
No	196/281 (69.7)	107/188 (56.9)	174/278 (62.8)

* Defined as patients with normal Hb (> 12 g/dl) at enrollment and who developed anemia during treatment, or baseline anemic patients with a decline of Hb level; it excluded patients with low baseline Hb and who had stable Hb during chemotherapy treatment

and other chemotherapy was 67.1 and 65.3 percent, respectively. In the group of patients with normal Hb at enrollment, the incidence of anemia in patients with platinum-based, anthracycline-based and other chemotherapy was 78.5, 56.7 and 29.7 percent, respectively. Generally, platinum-based chemotherapy caused more frequent anemia than anthracycline-based or other regimens. Severity of anemia in patients with different chemotherapy regimens were demonstrated in Fig. 2 and Table 5. There was no significant difference between grade III and IV anemia among patients with various chemotherapy regimens. No patients developed grade IV anemia after chemotherapy sessions. However, the patients who received platinum-based chemotherapy had more grade II anemia (26.2%) when compared to those treated with anthracycline-based (1.7%) or other regimens (0%). There was no significant difference of frequency of anemia during chemotherapy treatment, whether the patients received concomitant chemoradiation or not (Table 4). Seven out of 304 patients (2.3%) developed grade III anemia and most of them required blood transfusion and other specific treatments for anemia.

Logistic regression analysis was performed to identify risk factors that associated with anemia in cancer patients who received chemotherapy. Known risk factors were used for analysis and included stage, chemotherapy regimens (platinum-based, anthracycline-based or other regimens) and concomitant chemoradiation. Chemotherapy regimens were found to be the significant risk factor. The patients who received platinum and anthracycline-based chemotherapy developed more anemia than those who had other regimens with odd ratios 9.4 ($p < 0.001$, 95% CI; 3.1-28.9) and 3.5 ($p = 0.005$, 95% CI; 1.4-8.5), respectively.

Among 207 patients who developed grade I and II anemia, 197 patients received no specific treatment for anemia because of its mild degree and

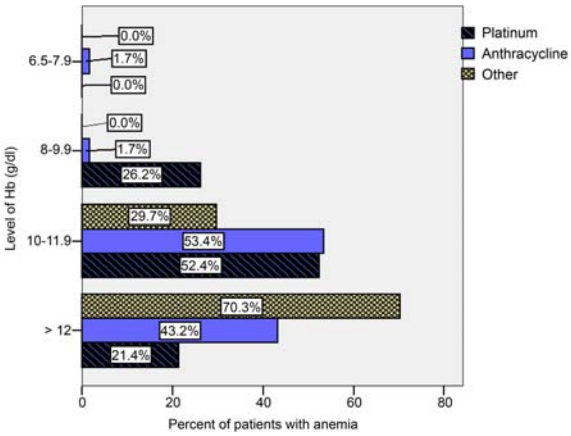

Fig. 2 Severity of anemia of patients with normal baseline Hb during chemotherapy session stratified by chemotherapy regimens

because they exhibited no anemic symptoms. Eleven patients received an iron supplement and Hb level was maintained. Ten out of 47 patients with grade II and III anemia (21.3%) received blood transfusion, whereas only one patient received erythropoietin for treatment of anemia. Therapies of anemia according to the severity of anemia were shown in Table 6.

Discussion

Our study has demonstrated the high frequency and incidence of anemia in cancer patients who received chemotherapy at Siriraj Hospital. There were 34.5 percent of the patients who had hemoglobin level below 12 g/dl at enrollment, which is similar to anemia survey in Western countries, such as 39.3 percent from the European cancer anemia survey (ECAS)[6] and 35 percent from the Australian cancer anemia survey (ACAS)[7]. The frequency of anemia was defined as Hb value less than 12 g/dl at least once and was 70.7 percent. Most of patients who received

Table 5. Frequency and grading of anemia correlation with chemotherapy regimens in patients who started with normal baseline Hb

Regimens	Number of patients with anemia (%)				
	None	Grade I	Grade II	Grade III	Grade IV
Platinum	9 (21.4)	22 (52.4)	11 (26.2)	0 (0)	0
Anthracycline	51 (43.2)	63 (53.4)	2 (1.7)	2 (1.7)	0
Other regimens	26 (70.2)	11 (29.7)	0 (0)	0 (0)	0
Total	86 (43.6)	96 (48.7)	13 (6.6)	2 (1)	0

Table 6. Treatment for patients with grade I-III anemia during chemotherapy treatment

Treatments	Number of patients with treatment for anemia		
	Grade I	Grade II	Grade III
None	161	31	1
Blood transfusion	0	5	5
With erythropoietin		-	1
With iron supplement		-	1
Iron supplement	6	4	1
Total	167	40	7

chemotherapy became anemic (61.1%). The incidences of anemia in all patients and initially non-anemic patients were 61.1 and 56.3 percent, respectively. There was a tendency toward lower incidence of anemia in patients with initial normal Hb.

The majority of our patients were diagnosed with breast, lung and colorectal cancer. The patients with cancer of the gastrointestinal tract, especially colorectal cancer had more anemia than patients with lung and breast cancer at enrollment. However, the incidence of anemia during treatment increased from 27.5 percent to 76.9 percent in patients with lung cancer and from 28.2 percent to 59.6 percent in patients with breast cancer, whereas incidence of anemia in patients with gastrointestinal malignancy remained the same. The etiologies of anemia in patients with gastrointestinal cancer may be iron deficiency anemia due to chronic blood loss and anemia of malignancy. The majority of our patients had already received surgery to remove a tumor which would prevent further blood loss.

Anemia is a common complication of myelosuppressive chemotherapy. The severity of anemia depends on the extension of disease and the intensity of treatment. Repeated chemotherapy may impair erythropoiesis cumulatively. Most of patients with post-chemotherapy anemia had only asymptomatic grade I or II anemia. Among 304 patients with various cancer types, 78 percent of patients with lung cancer developed anemia, which is the highest incidence that occurred when compared with other cancer types. The most likely cause of anemia in this group is chemotherapy-associated anemia. Most of them received platinum-based chemotherapy, which is a regimen known to cause more decline of Hb level. Multivariate analysis demonstrated that both platinum and anthracycline-based chemotherapy induced more anemia, when compared with other chemotherapy regimens.

Despite a high frequency of anemia, 193 out of 214 anemic patients were asymptomatic and received no specific treatment for this condition during the survey. Only 7 out of 214 anemic patients developed grade III anemia according to the toxicity grading criteria of the NCI. Blood transfusion was the treatment of choice in severe or symptomatic anemic patients. Iron supplements were administered in patients with low MCV anemia or who had potential for blood loss. Standard treatments of chemotherapy-induced anemia included blood transfusion and erythropoietin, if Hb level was below 10 g/dl, to increase Hb level and decrease frequency of blood transfusion. Erythropoietin therapy was recommended to keep serum Hb near 12 g/dl whereas it also increased incidence of venous thromboembolism. Only one patient received erythropoietin to maintain Hb near 12 g/dl and blood transfusion was also needed. Among 214 anemic patients, 21 patients (9.8%) were specifically treated. The frequency of anemic patients who needed treatment in our study was clearly lower than that noted on previous reports by the European Cancer Anemia Survey (ECAS) and the Australian Cancer Anemia Survey (ACAS), which were 39 and 33 percent, respectively.

In the ECAS study, the patients with poor performance status were associated with lower serum Hb. The anemic patients had a poorer quality of life; however, survival and outcomes of treatment are not yet defined.

There were several limitations in our study. Firstly, the population in our study included patients receiving treatment and who had been followed up at our medical oncology unit. Patients with hematological and gynecological malignancies were excluded. Our patients might not perfectly reflect the overall population in our institution. Secondly, there were limitations in identifying certain causes of anemia. Causes of anemia in cancer patients were diverse. Chemotherapy-associated anemia, one of the most common conditions in chemotherapy treated patients, was diagnosed by exclusion and was only assumed if no other causes were identified. The complete history and physical examination of each patient was obtained to identify blood loss or evidence of nutritional deficiency anemia. Investigations to define causes of anemia depended on individual physicians. There was no intensive work up guideline in our survey, which

might include an iron study, determining level of B12 or folate or even a bone marrow study. Finally, our study did not mention the outcomes of cancer treatment, quality of life and the performance status of the patients that might be influenced by Hb level.

Our study is the first large study in Thailand that surveyed the frequency, characteristics, predisposing factors and treatment of anemia in cancer patients receiving chemotherapy. Further study is needed to evaluate accurately the prevalence of anemia in cancer patients and the influence of this condition upon quality of life and the outcomes of cancer treatment in terms of survival. In addition, our study revealed a pattern of treatment of anemia in our cancer patients that could be used to provide more intensive treatment for anemia in order to achieve better outcome.

Conclusion

Characteristics and factors that are associated with anemia in cancer patients at Siriraj Hospital, including types of cancer; staging, previous treatment and chemotherapy use, were identified. Frequency of anemia was not different from other previous studies in Western countries. Platinum and anthracycline-based chemotherapy were the regimens which caused more incidence of anemia. Treatment patterns of chemotherapy-induced anemia are still different from practice guidelines created in Western countries. Most of our patients who developed anemia were grade I or II anemia and asymptomatic so they received no specific treatment. The result of this study may be useful as providing basic data for establishing future treatment guidelines for anemia in cancer patients in Thailand.

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ภาวะโลหิตจางในผู้ป่วยมะเร็งที่รับการรักษาด้วยยาเคมีบำบัดที่สาขาวิชาเคมีบำบัด โรงพยาบาลศิริราช

ศุทธินี อิทธิเมฆินทร์, วิเชียร ศรีมุนินทร์นิมิต

ภูมิหลัง: *ภาวะโลหิตจางในผู้ป่วยมะเร็งเป็นจากหลายสาเหตุ ได้แก่ ภาวะโลหิตจางจากการขาดธาตุเหล็ก หรือสารอาหารอื่น ผลจากโรคมะเร็ง ผลจากการรักษามะเร็งด้วยยาเคมีบำบัดและรังสีรักษาโดยเฉพาะอย่างยิ่งยาเคมีบำบัดกลุ่มแพลตตินัมทำให้ระดับฮีโมโกลบินลดลงได้มากกว่าในสูตรอื่น ภาวะโลหิตจางทำให้คุณภาพชีวิต การร่วมมือในการรักษา และพยากรณ์โรคของผู้ป่วยแย่ลง ดังนั้นการรักษาภาวะโลหิตจางควบคู่ไปกับการรักษาจำเพาะสำหรับโรคมะเร็งจึงมีความสำคัญมาก ในปัจจุบันยังไม่มีการศึกษาภาวะโลหิตจางในผู้ป่วยมะเร็งที่รับการรักษาด้วยเคมีบำบัดในประเทศไทย*

วัตถุประสงค์: *เพื่อศึกษาลักษณะทางคลินิก ปัจจัยที่มีผลต่อระดับฮีโมโกลบิน และการรักษาภาวะโลหิตจางในผู้ป่วยมะเร็งที่รับการรักษาด้วยเคมีบำบัด ศึกษาผลของยาเคมีบำบัดแต่ละสูตรต่อระดับฮีโมโกลบิน*

วัสดุและวิธีการ: *คัดเลือกผู้ป่วยที่ได้รับการวินิจฉัยว่าเป็นโรคมะเร็งที่รับการรักษาด้วยเคมีบำบัดอย่างน้อย 4 ชุด และติดตามการรักษาที่สาขาเคมีบำบัดโรงพยาบาลศิริราชระหว่างมิถุนายน พ.ศ. 2549 ถึง ธันวาคม พ.ศ. 2551 เป็นผู้ป่วยที่เข้าเกณฑ์การศึกษา รวบรวมและวิเคราะห์ข้อมูลทางคลินิก ได้แก่ ลักษณะพื้นฐานของผู้ป่วย ชนิดของมะเร็ง ระยะของโรค การรักษาที่ได้รับ สูตรยาเคมีบำบัด ระดับฮีโมโกลบินก่อนและระหว่างการรักษาด้วยยาเคมีบำบัด*

การวิเคราะห์ทางสถิติ: *Chi-square และ Logistic regression analysis*

ผลการศึกษา: *ผู้ป่วยที่ได้รับการรักษาด้วยยาเคมีบำบัด 304 คน (ชาย 71 ราย หญิง 233 ราย) อายุเฉลี่ย 52 ปี ระดับฮีโมโกลบินเฉลี่ยก่อนรับยาเคมีบำบัด 12.5 g/dl (7.7-16.1 g/dl) อุบัติการณ์ของภาวะโลหิตจางก่อนการรับยาเคมีบำบัดเท่ากับ ร้อยละ 35.4 และเพิ่มเป็น ร้อยละ 61.1 หลังรับการรักษาด้วยยาเคมีบำบัด ผู้ป่วยที่ได้รับการรักษาด้วยยา platinum และ anthracycline เกิดภาวะโลหิตจางมากกว่าในสูตรอื่น {odds ratio 9.4 (95% CI 3.1-28.9, p < 0.001) และ 3.5 (95% CI 1.4-8.5, p = 0.005) ตามลำดับ} ผู้ป่วยที่เกิดภาวะโลหิตจางส่วนใหญ่ไม่มีอาการและไม่ได้รับการรักษาจำเพาะ*

สรุป: *ภาวะโลหิตจางในผู้ป่วยมะเร็งที่รับการรักษาด้วยเคมีบำบัดเป็นภาวะที่พบได้บ่อย โดยเฉพาะในผู้ป่วยที่ได้รับยาเคมีบำบัดสูตรที่ประกอบด้วย platinum และ anthracycline ส่วนใหญ่ไม่รุนแรงและไม่มีอาการ การให้เลือดเป็นการรักษาที่ใช้บ่อยในผู้ป่วยที่มีอาการ และโลหิตจางระดับรุนแรงในโรงพยาบาลศิริราช*