INTERVENCIÓNES DE ENFERMAGEM E MONITORIZACIÓN POR TELEFONE DE INDIVIDUO COM CÁNCER HEMATOLÓGICO EN TRATAMIENTO AMBULATORIAL

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ORIGINAL ARTICLE

ASSISTANCE AND MONITOR A TELEPHONE INTERVIEW FROM INDIVIDUALS WITH BLOOD CANCER IN AMBULATORY TREATMENT

INTERVENCIONES DE ENFERMAGEM E MONITORIZACIÓN POR TELEFONE DE INDIVIDUO COM CÁNCER HEMATOLÓGICO EN TRATAMIENTO AMBULATORIAL

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ABSTRACT: To identify the adverse effects resulting from chemotherapy and biological therapy in patients with hematologic diseases undergoing outpatient treatment, for subsequent telephone monitoring and interventions. Method: this is a research with a quantitative, exploratory, and descriptive approach. The study population consisted of oncologic clients with a diagnosis of hematologic cancer who underwent chemotherapy and/or biological therapy in an oncology and hematology outpatient unit of a general hospital, within the period from September 2010 to February 2011, after approval by the Research Ethics Committee of Hospital Israelita Albert Einstein, under the Protocol 1313/10. The sample consisted of 40 individuals who met the inclusion criteria. A script was used for telephone monitoring. Data were analyzed through descriptive statistics and the McNemar test, in order to compare two proportions in matched samples obtained in the nursing interventions. Results: the adverse effects presented by the clients group under analysis were: nausea (14.3%), fatigue (14.3%), alopecia (8.6%), leucopenia (5.7%), neutropenia (5.7%), cold (5.7%), mucositis (5.7%), and diarrhea (5.7%); 2.9% presented: fever, insomnia, hyperpigmentation of the nail bed, and sore throat. The nursing interventions concerned the guidelines on nutrition, hydration, hygiene, care of the skin and mucosa, rest, infection prevention, and notification to the physician in severe cases. Conclusions: the results of nursing interventions applied to the clinical manifestations presented by these individuals, resulting from the treatment, had the desired effect and telephone monitoring showed to be effective with regard to the customers surveyed. Descriptors: telephone; oncologic nursing; drug therapy; nursing assessment.

RESUMO: Objetivo: identificar os efeitos adversos decorrentes do tratamento quimioterápico e biológico de pessoas com doenças hematológicas em tratamento ambulatorial, para posterior monitoramento telefônico e intervenções. Método: trata-se de uma pesquisa com abordagem quantitativa, exploratória e descritiva. A população do estudo foi composta pelos clientes oncológicos com diagnóstico de câncer hematológico que fizeram tratamento quimioterápico e/ou biológico em um ambulatório de oncologia e hematologia de um hospital geral no período entre setembro de 2010 e fevereiro de 2011, após aprovação do Comité de Ética em Pesquisa do Hospital Israelita Albert Einstein, sob o Protocolo n. 1313/10. A amostra foi de 40 indivíduos que atenderam os critérios de inclusão. Foi utilizado um roteiro para a monitorização por telefone. Os dados foram analisados por meio da estatística descritiva e o teste de McNemar, para comparação de duas proporções em amostras paradas obtidas nas intervenções de enfermagem. Resultados: os efeitos adversos apresentados pelo grupo de clientes estudados foram: náuseas (14,3%), fadiga (14,3%), alopecia (8,6%), leucopenia (5,7%), neutropenia (5,7%), resfriado (5,7%), mucosite (5,7%) e diarreia (5,7%); 2,9% apresentaram: febre, insônia, hiperpigmentação do leito ungueal e dor nas tonsilas. As intervenções de enfermagem referiram-se às orientações acerca de nutrição, hidratação, higiene, cuidados com a pele e mucosas, repouso, prevenção de infecção e notificação para o médico em casos graves. Conclusões: os resultados das intervenções de enfermagem aplicadas às manifestações clínicas apresentadas por esses indivíduos, decorrentes do tratamento, proporcionaram o efeito desejado e o monitoramento por telefone mostrou-se eficaz em relação à clientela pesquisada. Descriptores: telefone; enfermagem hematológica; quimioterapia; avaliação em enfermagem.

RESUMEN: Objetivo: identificar los efectos adversos del tratamiento quimioterápico y biológico de personas con enfermedades hematológicas en tratamiento ambulatorial, para posterior monitorización telefónica e intervenciones. Método: esto es una investigación con abordaje cuantitativo, exploratorio y descritivo. La población del estudio fue compuesta por los clientes oncológicos con diagnóstico de cáncer hematológico que hicieron tratamiento quimioterápico y/o biológico en un ambulatorio de oncología y hemoterapia de un hospital general en el periodo de septiembre de 2010 hasta febrero de 2011, después de la aprobación del Comité de Ética en Investigación del Hospital Israelita Albert Einstein, bajo el Protocolo 1313/10. La muestra fue de 40 individuos que cumplieron los criterios de inclusión. Se utilizó un guión para la monitorización por teléfono. Los datos fueron analizados por medio de la estadística descriptiva y el prueba de McNemar, para comparación de dos proporciones en muestras paradas obtenidas en las intervenciones de enfermería. Resultados: los efectos adversos presentados por el grupo de clientes estudiado fueron: náuseas (14,3%), fadiga (14,3%), alopecia (8,6%), leucopenia (5,7%), neutropenia (5,7%), resfriado (5,7%), mucosite (5,7%) y diarreia (5,7%); 2,9% presentaron: fiebre, insomnio, hiperpigmentación del lecho ungueal y dolor en las amigdalas. Las intervenciones de enfermería se refirieron a las orientaciones acerca de nutrición, hidratación, higiene, cuidados con la piel y las mucosas, reposo, prevención de infección y notificación al médico en casos graves. Conclusiones: los resultados de las intervenciones de enfermería aplicadas a las manifestaciones clínicas presentadas por estos individuos, resultantes del tratamiento, proporcionaron el efecto deseado y la monitorización telefónica se mostró efectiva con relación a la clientela encuestada. Descriptores: teléfono; enfermería oncológica; quimioterapia; evaluación en enfermería.
INTRODUCTION

The number of cancer cases has considerably increased worldwide, something which makes it one of the most important public health problems both in developed and developing countries, accounting for more than 6 million deaths each year.

The term cancer is used to represent a set of more than 100 diseases, among them the different types of hematologic cancer. The main and most incident types of hematologic cancer are: Hodgkin’s lymphoma (HL), Non-Hodgkin lymphoma (NHL), acute leukemias, and chronic leukemias.

Antineoplastic chemotherapy, the use of chemical agents, alone or in combination, has become one of the most important and promising ways to fight cancer. Chemotherapy is a kind of systemic treatment for disease which consists of cytotoxic medicines acting on neoplastic cells and also on normal cells. Besides chemotherapy, there’re other treatment modalities, such as, for instance, biological therapy.

Biological therapy may be defined as treatment with agents derived from biological sources which work in different ways to modify the immune response by preventing the division of cancer cells or causing injury and death of these cells. The main agents currently used are: interferons, interleukins, hematopoietic growth factors, monoclonal antibodies, epidermal growth factors, and angiogenesis inhibitors. Biological therapy may cause few adverse effects, however, the renal and liver function should be monitored before and during treatment with most biological agents. Some patients may experience adverse effects such as confusion, memory loss, fatigue, dermatologic toxicity and mucositis.

The chemotherapeutic and biological agents may be administered in hospitals, specialized or not, outpatient units, oncology clinics, or specialized clinics. To determine whether treatment will be administered on outpatient basis or whether the individual will be hospitalized, one considers some aspects, such as: the complexity, duration and acute toxicity of the protocol, the degree of adherence to treatment, the distance from the institution, the ease of movement, functional status, economic status, and the support systems apoio.

Among the main chemotherapeutic and biological agents for the treatment of lymphoid cancer one finds: ABVD (Adriamycin, Bleomycin, Vinblastine, and Dacarbazine) protocol for HL, R-CHOP (Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, and Prednisone) protocol for NHL. The treatment for leukemias, in general, is carried out in three phases (induction, consolidation, and maintenance). In these phases, the most frequently used chemotherapeutic agents are: Cytarabine, Daunorubicin, Methotrexate, Vincristine, and the protocol GBTL 2009 (Daunorubicin, Vincristine, L-Asparaginase, Cytarabine, 6-Metacaptopurine). The individual who undergoes a treatment with the chemotherapeutic agents mentioned may or may not develop adverse effects such as myelosuppression, nausea, and vomiting, alopecia, hepatotoxicity, cardiotoxicity, peripheral neuropathy, hypersensitivity reactions, rash, pruritus, headache, neurotoxicity, pulmonary toxicity, among others.

The relevance of this study to nursing is justified by the importance of following clients up, through the identification and control of adverse effects derived from chemotherapy and biological therapy, especially the individual who performs outpatient treatment, as she/he probably will manifest these symptoms when at home, away from the treatment unit.

Therefore, it’s essential that nurse’s role involve not only the outpatient care procedures, but also a follow-up of the client’s treatment. Monitoring may be performed in various ways, among which one finds the use of telephone.

The motivation for this research was the fact that it’s an area of great potential for nurses and, in Brazil, the use of telephone monitoring is not an usual practice, yet, there’re a few reports on the subject in the literature. This practice is widely used by oncological nurses in the United States of America (USA), due to the fact that people with cancer present many side effects related to treatment.

Screening by telephone and telephone counseling are skills which may be the key to outpatient nursing. The use of telephone is part of oncologic care, which covers a wide range of activities, including the management of symptoms, the medication renewal, the coordination of care, education, and psychosocial support to the oncologic client.

To carry out telephone monitoring, there’s a need for a systematic process, including protocols or scripts, concise and complete documentation, to allow the nurse to offer enough time and attention to the client undergoing a treatment. Information must be
clear and accurate. The nurse needs to be sure that the client understood all instructions provided and that she/he feels free to ask questions and receive further explanation on any information which is not clear.\textsuperscript{13-15} Thus, people receive good quality information that allows them to control symptoms at home, understand when medical interventions are needed, and avoid delays in treatment and unnecessary trips to hospital.

This study aims to identify the adverse effects resulting from chemotherapy and biological therapy of people with hematological diseases undergoing outpatient treatment, for subsequent telephone monitoring and interventions.

\section*{METHOD}

Study with a quantitative approach, exploratory, descriptive, and prospective, developed in an oncology and hematology outpatient unit of a general hospital, private, large, located at the city of São Paulo, Brazil.

The sample consisted of 40 people with hematologic cancer (HL, NHL, acute leukemia or chronic leukemia) who underwent outpatient chemotherapy and/or biological therapy, all of them treated within the period from September 2010 to February 2011, after prior formal written authorization by the professional responsible for the oncology and hematology outpatient unit and after approval of the Research Ethics Committee of Hospital Israelita Albert Einstein, under the Protocol 1313/10.

After approval of the research project, a meeting was held with the nurses of the outpatient chemotherapy unit to check the clients with hematologic cancer who would undergo chemotherapy and/or biological therapy. After consultation, the researchers approached the selected clients, explained them the aims of the study and requested their participation. The Free and Informed Consent Term (FICT) was handed in at this moment. For those who expressed the will to participate in the study it was reported that, within a few days, they would receive a call from one of the researchers, in order to identify possible clinical manifestations resulting from the treatment. Each client received an average of two telephone calls. In addition, the pertinent nursing interventions were applied, under the form of activities, supported on the Nursing Interventions Classifications (NIC)\textsuperscript{16}, which, when needed, were adapted to the sector’s routine after authorization by the nurse coordinating the area.

Data collection was carried out through a form to monitor by telephone developed by the authors, in order to meet the aims of this study.

The form concerned consisted of variables including: age, gender, diagnosis, treatment protocol, chemotherapy cycle, adverse effects, main complaints, onset, location, characteristics, length of time, associated factors, improvement factors, nursing interventions, and verbal contact understood by the client/family member.

Data were identified, compared, and analyzed through descriptive statistics, according to the absolute and relative frequencies, represented by means of tables, and the McNemar test was used for comparing two proportions in matched samples obtained in the nursing interventions. The McNemar test is a chi-square adjustment test which compares the frequencies observed to those expected, presuming an equal effect for the treatment (or a lack of association between the variables).\textsuperscript{17}

\section*{RESULTS}

The research results, that is, the findings on the variables in the study group, are presented below.

Table 1 shows the results related to gender, age, oncologic disease, and treatment protocol.
According to Table 1, one finds out that most of the sample consists of male clients (70%), and the average age of respondents was 44.5 years, with a predominant age group from 20 to 50 years (50%). The minimum age established to participate in the study was 20 years and the maximum age found was 76 years.

Among individuals diagnosed with non-Hodgkin lymphoma (60%), 35% received as the maintenance protocol Rituximab and 15% followed the R-CHOP (Rituximab, Cyclophosphamide, Doxorubicin, Vincristine) protocol. Six people presented Hodgkin’s lymphoma; they followed the ABVD (Bleomycin, Vinblastine, Dacarbazine, Doxorubicin) protocol.

Four people had chronic lymphocytic leukemia; two of them received as treatment protocol Rituximab, Cyclophosphamide, and Fludarabine, and the two other received only Rituximab and Fludarabine.

Among the six individuals who were diagnosed with acute lymphocytic leukemia, two were in the induction phase of treatment with Vincristine, Daunorubicin, and L-Asparaginase, and the remaining ones were in the maintenance phase of treatment with Methotrexate. Two other participants were diagnosed with non-Hodgkin lymphoma; two followed a protocol with Methotrexate and the two other were treated with Cyclophosphamide.

Now, we present the adverse effects on clients with hematologic cancer resulting from outpatient chemotherapy and biological therapy.

In Table 2, one observes that 22.9% of clients had no adverse effects; 20% of these people had Rituximab as treatment protocol for non-Hodgkin’s lymphoma. In this case, it’s common that individuals do not show adverse effects, since they were receiving Rituximab up to a maximum dose of 1 g for maintenance every three months, after having undergone another more aggressive treatment. At this dosage, the presence of side effects is not usual, due to the fact that clients had already received Rituximab before.
Nauseas and fatigue were the most frequent adverse effects presented by individuals. Ten clients (14.3%) reported the presence of nausea, and they received ABVD (Bleomycin, Vinblastine, Dacarbazine, Doxorubicin), Rituximab, Cyclophosphamide, and Fluodarabine, and R-CHOP (Rituximab, Cyclophosphamide, Doxorubicin, Vincriistine) as treatment protocols.

Fatigue was another adverse effect presented by five clients (14.3%), it was reported by individuals who received ABVD (Bleomycin, Vinblastine, Dacarbazine, Doxorubicin), Rituximab, Cyclophosphamide, and Fluodarabine as treatment protocols.

During data collection, six people (8.6%) had alopecia. Other individuals had already presented alopecia and they followed nursing interventions which were defined before this study started.

Leukopenia was presented by only 5.7% of subjects during the data collection period. Among these clients, two were diagnosed with ALL and followed a treatment protocol with Methotrexate, and other two individuals had NHL and followed a treatment protocol with R-CHOP. The two clients who were diagnosed with ALL also had neutropenia. Two other, who also received R-CHOP as treatment protocol for NHL had fever (t = 37.8°) at home, and neutropenia was identified after blood count.

Four people (5.7%) had cold during data collection. It’s noteworthy that, in the days prior to the collection of data from these four clients, the weather was dry for some days, thus, in a consultation with the physician in charge of the case, it would be considered normal that these individuals had a cold.

Regarding diarrhea, four clients (5.7%) showed bowel movements more than three times a day. Of those people, one reported having eaten improperly one day prior to receive the treatment protocol, so one can’t state whether the individual had diarrhea due to the treatment protocol or poor nutrition.

Tables 3 and 4 show the nursing interventions, under the form of activities, which were applied according to the adverse effects presented by clients.

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<table>
<thead>
<tr>
<th>Nursing interventions</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fatigue</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prioritize daily schedule, plan activities</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>Balance work and rest periods</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>Practice moderate exercise</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>Have fractionated meals and in a greater number throughout the day</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>Increase the amount of fluid intake</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>Promote the sleeping practice, including limits on intake of caffeine and alcohol</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>Rest during the day, if needed</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td>Try to sleep at night on a regular schedule</td>
<td>10</td>
<td>12.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>80</td>
<td>100,0</td>
</tr>
<tr>
<td><strong>Nauseas</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have fractionated meals</td>
<td>14</td>
<td>20,0</td>
</tr>
<tr>
<td>Eat cold foods or at room temperature</td>
<td>14</td>
<td>20,0</td>
</tr>
<tr>
<td>Avoid smells and stress while eating</td>
<td>14</td>
<td>20,0</td>
</tr>
<tr>
<td>Eat and drink slowly, in small amounts</td>
<td>14</td>
<td>20,0</td>
</tr>
<tr>
<td>Avoid fried and fatty foods</td>
<td>14</td>
<td>20,0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>70</td>
<td>100,0</td>
</tr>
<tr>
<td><strong>Fever</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report if fever &gt; 37.8° and if there’re shivers</td>
<td>14</td>
<td>20,0</td>
</tr>
<tr>
<td>Check the temperature every 2 or 4 hours, if it worsens, notify the physician</td>
<td>12</td>
<td>17,1</td>
</tr>
<tr>
<td>the physician in the presence of pain when urinating or pain at the catheter insertion site</td>
<td>08</td>
<td>11,4</td>
</tr>
<tr>
<td>Increase fluid intake</td>
<td>06</td>
<td>8,6</td>
</tr>
<tr>
<td>Rest</td>
<td>06</td>
<td>8,6</td>
</tr>
<tr>
<td>Take usual medicines for cases of fever and pain according to medical instructions</td>
<td>06</td>
<td>8,6</td>
</tr>
<tr>
<td>Avoid crowds and exposure to people with signs of infection</td>
<td>06</td>
<td>8,6</td>
</tr>
<tr>
<td>Make good personal hygiene, including hands washing before and after using the toilet</td>
<td>04</td>
<td>5,7</td>
</tr>
<tr>
<td>Make good oral hygiene, flossing (without neutropenia)</td>
<td>04</td>
<td>5,7</td>
</tr>
<tr>
<td>Don’t clean nor handle the feces of animals</td>
<td>04</td>
<td>5,7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>70</td>
<td>100,0</td>
</tr>
<tr>
<td><strong>Nail bed hyperpigmentation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use sunscreen</td>
<td>02</td>
<td>100,0</td>
</tr>
</tbody>
</table>
In tables 3 and 4 one finds out that the nursing interventions/activities applied to clients were related to the guidelines on nutrition, hydration, hygiene, care of skin and mucosae, rest, care to prevent infection due to neutropenia, and notification of severe cases to the physician.

Statistical analysis was performed using the McNemar test for comparing two proportions in matched samples, the difference was considered significant between the proportions of clients with adverse effects before and after the nursing intervention/activities (p = 0.0027), that is, the results of nursing interventions/activities applied to the clinical manifestations presented by these people, resulting from chemotherapy and biological therapy, provided the desired effect (tables 3 and 4).

**DISCUSSION**

It was noticed that the main adverse effects presented by clients in outpatient treatment with chemotherapeutic and biological agents were: nausea, fatigue, and alopecia; sixteen people showed no adverse effects to the chemotherapy and biological therapy.

Nauseas and vomiting are the expected side effects in individuals who follow the treatment protocols used with the clients of the sample. Even having already received antiemetics before chemotherapy, 14.3% of people presented nauseas. One study pointed out that 52% of clients receiving potentially emetogenic chemotherapy have acute nauseas, while 10% to 25% of these people can report the presence of vomiting. One study pointed out that 52% of clients receiving potentially emetogenic chemotherapy have acute nauseas, while 10% to 25% of these people can report the presence of vomiting. Out of the ten clients in the sample, none had vomiting.

Fatigue is recognized as the most common side effect in people receiving treatment for cancer. Depending on how fatigue is defined and evaluated, the prevalence estimates range from 25% to 99% in clients receiving chemotherapy. In this study, fatigue was reported by 14.3% of the sample.

Alopecia is a very common side effect in people who receive chemotherapeutic drugs for cancer treatment. It’s a side effect which causes a great impact both on individuals and on the society. The exposure to most of the chemotherapeutic drugs interferes with the hair growth, producing a weak or decreased area on the hair shaft, where the hair breaks up, and it leads the cells surrounding the hair root to die, then the hair falls out.
During data collection, fourteen people received guidelines with regard to fever, and only two of them had febrile neutropenia. This is due to the fact that clients who undergo chemotherapy/biological therapy have a high risk of developing febrile neutropenia during the nadir of the drug, therefore, they were advised on what to do if their temperature was ≥ 37.8°C.

Neutropenia has a significant negative impact on clinical outcomes for individuals with cancer, it is, also, one of the biggest predictors of life-threatening infection in these cases. The literature points out to other negative outcomes of neutropenia, such as hospitalization, use of intravenous antibiotics, effect on the quality of life of individuals and caregivers, productivity loss, economic costs to individuals, family members, and the health system. Chemotherapy-induced neutropenia is the major dose-limiting toxicity of systemic chemotherapy and it is associated to a significant morbidity, mortality, and increased costs.21,22

In a literature review, it was reported that the main risk factor for neutropenia and leukopenia induced by chemotherapy is the malignancy of non-Hodgkin lymphoma. The research also claimed that clients with malignant hematological diseases were at greater risk of neutropenic complications than those with solid tumors, due to the underlying disease process, as well as the treatment intensity needed. In this study, all individuals had an onco-hematologic disease.22

In the scientific literature, there are few publications on nursing interventions by telephone along with oncologic clients undergoing outpatient treatment. However, a study sought to examine the telephone calls received in an oncology and hematology outpatient unity in New York.23 Within four months, the service received 5,283 telephone calls, in which the average age of clients was 61.1 years and 58.5% of them were female, a finding different from the sample of this study, where most individuals are male, with a mean age of 44.5 years.

The most frequent reasons for the calls were related to request of diagnosis or laboratory exam results, and to report adverse effects. Out of the individuals who reported adverse effects, 380 were diagnosed with hematologic cancer. The research concludes that the results confirm that screening by telephone is a major component of the outpatient oncology practice, data which corroborate the findings of this study.23

In Australia and New Zealand there is a health service which enables to the population a free telephone number, available 24 hours a day, in which people can get advice and screening of medical symptoms. In this service, nurses are in charge of the screening by telephone, effectively reducing the workload of physicians.24

A research was carried out on May 2007 with the aim of identifying the major side effects from the results of this screening by telephone by nurses in six screening services distributed in various regions of Australia and New Zealand. The paper identified that, among the ten main side effects presented in the different regions, there were nausea and vomiting, shivers, fever, diarrhea, rash, and headache, that is, side effects similar to those observed in this study.24

In another study carried out in a hospital in New York, twelve residents answer to 483 calls within three weeks from individuals with different kinds of disease who had already been at the hospital in other situations. That study aimed to survey the screening results by telephone and identify the main characteristics of individuals included in the sample. Out of the 483 calls received, 189 were related to the presence of signs and symptoms. Regarding the symptoms reported, 17% were respiratory, 16% orthopedic, 15% dermatological, and 14% gastrointestinal, among others.25 In turn, in this study, most individuals reported nauseas and fatigue.

The limitations found in the development of this study were the low demand from clients who underwent chemotherapy/biological therapy in the oncology and hematology outpatient unit within the period of data collection, the lack of studies on the theme, and the results were limited to an only general hospital in Brazil. These drawbacks limit the generalization of results to patients with hematologic cancer. However, these constraints do not invalidate the study, the results encourage further evaluation of this kind with a larger group, for a longer time, in order to allow a possible confirmation of our preliminary results.

According to the papers mentioned above and the data presented in this research, telephone monitoring is presented as an effective way of client orientation, especially the person with cancer, who has many side effects resulting from chemotherapy and biological therapic. Thus, one recommends that telephone monitoring is implemented in the oncology and hematology outpatient unit.
where data for this study was collected.

CONCLUSION

The nursing intervention carried out during outpatient treatment and telephone contact improved people's knowledge and clients' self-care. It indicates that education strategies and early planning provide benefits when started before and during treatment.

Considering that the combination between these intervention strategies and telephone monitoring of individuals with hematologic cancer were tested in Brazil for the first time in this research, one suggests that further study is developed on the theme concerned to evaluate a wider range of clients, aiming to assess in greater depth telephone screening in clients with other types of cancer undergoing outpatient treatments.

The contribution of this study was demonstrating that it's possible to monitor by telephone the adverse effects in individuals with cancer undergoing outpatient treatment to get more rapid and effective nursing interventions.

REFERENCES


