Working group for safe handling with cytostatic drugs has been formed by the Ministry of Health, and it consists of professionals from IORS, Federal Bureau of Weights and Measures, Industrial Medicine, Institute of Hematology, Military Medical Academy, and Crown Agents. The aim of this working group is to prepare procedures for safe handling with cytostatic drugs, as well as program for educational seminar for nurses, medical technicians, and pharmaceutical technicians. The procedures will serve as a guide of good practice of oncology health care, and will refer to all actions that health care professionals carry out from the moment of drugs arrival to the pharmacy to the moment of their application. In the first segment of this procedure, general rules are given for working with cytotoxic agents, control for risky exposures, safe system of work, control of working environment, monitoring of the employees' health condition, adequate protection in the working environment, protective equipment of the employees (gloves, mask, cap, eyeglasses, shoe covers, coats and chambers for vertical laminar air stream). Storing of cytostatics, procedure in case of accident, and waste handling and removal are also described in this segment. Fifty-three standard operational procedures are described in detail in the second segment. Training scheme for preparation of chemotherapy is given in the third segment - education related to various fields and practical part, which would be carried out through workshops, and at the end of the course participants would pass a test and obtain certificate. After the procedures for safe handling with cytostatics are legally regulated, employer will have to provide minimum of protective equipment, special rooms for the drugs dissolving, chambers with laminar airflow, 6 hours working time, rotation of the staff working with drugs dissolving in intervals of every five years, higher efficiency, better health control. In conclusion, this specific field of work requires great psychological and physical efforts, and know-how. When taking care of ourselves, we are taking care of the others, as well.

*In coordination with Ministry of Health of Republic of Serbia

---

**Procedure of safe handling with cytostatic drugs***

**Keywords:** Medical Oncology; Drug Delivery Systems; Safety; Antineoplastic Agents; Occupational Exposure

**Our experience in education of patients within the first session**

"Human body and cancer" of European education program "Learning to live with cancer"

**Keywords:** Patient Education; Oncologic Nursing; Health Education; Medical Oncology

**Background:** As a part of educational team within the European Educational Program (EEP), senior nurse should give clear and understandable information to the patients about the functioning of the human body, tissues and cells, and increase their knowledge about the cancer. Senior nurse also has to get them acquainted with the medical terminology. The aim of this research was to assess how participants was satisfied with the information they had been given either orally, or in written form within the first session of the EEP.

**Methodology:** Thirty-seven patients and their family members were entered in this research. They were divided in two groups, which were investigated separately, on December 2002, and on May 2003 at the Department for Educational Activities. For the purpose of this investigation an anonymous questionnaire and the original evaluation list from the EEP as an assessment instrument, were used.

**Results:** Seventy percent of the participants assessed the first session as very good, while the remaining 30% scored the session as excellent. All participants understand information they had been given, and 97% of them claimed they had learned something they had not used to know. As far as printed material was concerned, 73% of the participants evaluated this material as being very good, and 24% of all included persons, as being excellent.

**Conclusion:** Our results confirmed that the first session "Human body and cancer" of EEP Learning to live with cancer meet the patients' and their family members' expectation concerning getting clear information on this subject.

---

©2003, Institute of Oncology Sremška Kamenica, Serbia and Montenegro
The influence of patients' education on quality of life - a single center experience

Background: Since 1998 an individual approach in patient's education has been applied at the Institute for Oncology and radiology of Serbia (IORS). Until now about 2500 patients have been informed and advised about the disease they were suffering from. Furthermore, education of patients and their family members is also ongoing at the IORS within European Education Program (EEP) “Learning to live with cancer”. This program is based on popular lectures requiring multidisciplinary team consisting of physician, senior nurse, psychologist, nutritionist, defectologist, and social worker. At the IORS, more than 3000 patients were included in this work in groups within EEP. The aim of this research was to evaluate the influence of patients' education on quality of life (QoL).

Patients and methods: A hundred and five individuals were divided into three groups of study subjects: experimental cancer patients group (n=35), control cancer patients group (n=35) (who did not have organized education), and control healthy persons group (n=35). All three groups were matched regarding gender, age and education level. The Rotterdam Symptom Checklist was used for the assessment of QoL.

Results: We found high correlation between the level of getting informed and total quality of life (r=0.330), physical dimension of quality of life (r=0.233) and poor correlation with psychic dimension of quality of life (r=0.215). All measures of QoL were significantly better in experimental patients' group than in control patients' group: physical dimensions (p<0.01), psychic dimension (p<0.01), functional ability (p<0.01), and total QoL (p<0.01).

Conclusion: Education significantly improves the quality of life in cancer patients. It seems to be a powerful weapon against the disease, and should be incorporated as an integral part of treatment plan.

KEYWORDS: Patient Education; Quality of Life; Medical Oncology

The importance of continual education in the process of integration of young nurses

Background: Duty of a nurse-manager is to realize importance of integration of newly employed nurse for forming coherent, unique and efficacious team. Integration of newly employed nurses, especially those without working experience, includes acceptance of standards that have been already accepted by other employees. The aim of this investigation was to show the importance of integration, in the first place the education for further professional improvement of young nurses.

Methodology: Each year, in September/October the Educative Program (EP) for young nurses is organized at the Institute for Oncology and Radiology of Serbia. The program consists of 24 hours of theoretical lectures, and of 28 hours of practical teaching. At the beginning and at end of EP, the written test for knowledge checking is obligatory for all participants.

Results: From September 2001 till June 2002, a group of twenty-two young nurses with no working experience were employed on a full-time basis at the Institute for Oncology and Radiology of Serbia. The median age was 22 years (range: 20-24yers). Sixteen of them (73%) started attending the EP during 2002/2003. At the end of course all of them passed the written exam (half of attendees showed excellent results).

Conclusion: Integration of young nurses mainly depends on the organization of continual education - the activity that has to become an obligation in all health institutions.

KEYWORDS: Education, Nursing, Continuing; Medical Oncology
Nursing interventions in prevention of the complication in locoregional administration of chemotherapy through port-a-cath system

**Background:** Port-a-cath is an implantable system, which can be inserted into the arterial or venous blood vessel. It enables more comfortable administration of drugs. Intraarterial chemotherapy has the greatest effect in the region downstream of the place of insertion, without major systemic side effects. The aim of the study was to evaluate complications during the administration of cytotoxic drugs through port-a-cath system.

**Patients and methods:** Twenty colorectal cancer patients with liver metastases were entered into this investigation, and they were prospectively followed up. All of them had the intraarterial implantable device for intrahepatic drug delivery, and they were treated during six-month period. Nursing interventions serving to prevent complications of drug administration are as follows: preparing of the patient, check for the system, preparing cytotoxic drugs for the administration, control the patients and the drug flow during the administration of chemotherapy.

**Results:** During this prospective follow up of our patients we noticed several problems related to the administration of chemotherapy through intraarterial port-a-cath systems. These difficulties include: difficulties in drug flow at the insertion point, difficulties in blood aspiration \((n=6)\), redness above the puncture, painful and moist skin lesions around the puncture \((n=1)\).

**Conclusion:** We did not notice frequent adverse effects of intrahepatic therapy because nursing interventions had been carefully planned in order to prevent the complications. Nurses should make an adequate health care plan based on the real and potential problems, with possible reasons and potential resolution of complications.

Our experience in education for patients and family members within European educational program "Learning to live with cancer"

**Background:** We attended a workshop in April 1997 in Dublin where European Educative Program (EEP) for patients’ education was presented. Since that time 12 seminars on patients’ education have been organized at the Institute for Oncology and Radiology of Serbia (IORS). The aim of this investigation is to present the experience in education of patients and their family members within the EEP.

**Methodology:** From November 18, 1998 until January 29, 2003 twelve seminars had been taken place at IORS, and 391 trainees attended this workshop. Each trainee chose presented topics and mode of presentation individually for each session. Final evaluation was done at the end of each seminar. Apart from the seminar’s evaluation in written form, the participants also had an opportunity to verbally pointed out advantages and disadvantages of the workshop.

**Results:** Among all participants, the majority of patients were women with breast cancer \((70\%)\) and colorectal patients \((15\%)\). The program and the workshop were evaluated as excellent by 51\% of the participants, and as very good by 43\% ones. Ninety one percent of trainees claimed that information were easy for understanding. Teaching and friendly relation caused positive emotions in more than 69\% of the participants.

**Conclusion:** Our results confirms the importance, need and usefulness of educational activities at IORS within the EEP "Learning to live with cancer".
Health care during administration of combined docetaxel - mitomycin c - vinblastin therapy in treatment of metastatic breast cancer patients

**Background:** New chemotherapy combinations are extensively investigated in metastatic breast cancer, especially in anthracycline resistant patients. However, the higher the treatment efficacy, usually the greater therapy side effects are reported. We present our health care experience in treating advanced breast cancer patients with three-drug combinations consisting of Taxotere, Mitomycin C and Vinblastin. The aim of the work was to evaluate the toxicity profile and the effectiveness of health care measures in prevention of chemotherapy side effects. Nurses interventions in prevention of complications due to therapy related toxicity were as follows: regular check-ups of patients, monitoring for signs and symptoms of infection in severely neutropenic patients, monitoring for hemorrhagic syndrome in patients with severe thrombocytopenia, monitoring for the signs and symptoms of stomatitis and aseptic care of oral cavity in order to prevent oral mucosal damage. Other toxicities were as follows: thrombocytopenia of grade 3 in 1 out of 27 patients, without development of hemorrhagic syndrome, anemia of grade 3 in 3 women, neurosensory toxicity in 4 patients, and liquid retention in 6 patients. However, mucositis of grade 4 occurred in 1 patients, and grade 3 in 2 of them despite the rigorous health care interventions. Fatigue of grade 2 developed in 7 patients. Other toxicities were mild or moderate, the most frequent of which was diarrhea in 3 women.

**Conclusion:** Our results confirm that a TXTR-MTC-VLB combination has considerable acute and cumulative side effects that are expected. However, regular monitoring and in time nursing interventions may spare patients from suffering the severe complications due to chemotherapy side effects.

**KEYWORDS:** Breast Neoplasms; Nursing Care; Antineoplastic Combined Chemotherapy Protocols; Drug Toxicity

Attitudes of patients with cancer toward the diagnosis, treatment and prognosis of the disease and their influence on the process of adaptation

**Background:** For majority of people cancer means a serious suffering and concern about their own life. Within the cognitive model, which includes assessment, interpretation and evaluation related to cancer, the style of adaptation is developed according to what cancer means to patients, and its significance defines their emotional and behavioral response. The aim of this research was to established patients' reactions and emotional responses to cancer and influence of its presence on the development of adaptation process.

**Patients and methods:** Thirty-six patients with gynecological and lung cancers and Hodgkin's lymphomas were asked to answer the questionnaire that had been previously developed for the purpose of this research.

**Results:** Our results showed that the considerable percent of patients do not accept the term "cancer" as their diagnoses (50% of patients accepted the term "tumor" and 8% of them did not even know which disease they were suffering from). All patients clearly recognized which therapy belongs to an antineoplastic treatment. Emotional distress, defined as anxiety (irritation, tension, trouble, nervousness) was present in 23% of patients. Thirty nine percent of patients were depressive, 38.8% of them experienced significant weakness, while 12.9% suffered from insomnia. Fear for future was present in 45% of patients, mostly women. Fatigue was the dominant symptom (47% of patients) and alopecia was the most frequently observed therapy adverse effect.

**Conclusion:** Since the oncologists in our country usually do not communicate the real diagnosis of cancer with patients, rejection is a common psychological defense mechanism especially among males. The majority of patients were not depressed, but the depression was more frequently expressed than anxiety, especially at transitional points during the disease (at diagnosis, waiting for operation, check ups, etc). Our results indicated that our cancer patients accomplished positive process of adaptation.
Evaluation of the effects of nursing interventions in patients with neutropenic fever entered into the prospective study of empiric antibiotic therapy

Background: Febrile neutropenia (FN) is a potentially lethal complication of severe neutropenia induced mainly by chemotherapy. The treatment of FN is one of the most important fields in supportive therapy in cancer patients. We evaluated the effects of health care measures in patients with FN entered in randomized prospective study of the two empiric antibacterial regimens: cefoperazone versus the combination of cefoperazone and amikacin. All patients were admitted in the Oncology Intensive Care Unit for the treatment of FN and intensive monitoring. This study is currently ongoing in cooperation with the Department for Medical Oncology, from which patients are recruited into the study. The objective of this report is to show the importance of nursing interventions in health care of patients with FN for: timely recognition of neutropenia, prevention of infections in neutropenic patients, prompt reaction in urgent conditions of FN and infection, and effective treatment of neutropenia.

Patients and methods: From February 2001 to May 2003, 483 patients with grade 4 neutropenia (according to the WHO criteria) were registered at the Department of Medical Oncology. Eighty of these patients were entered into the study, 39 patients were treated with cefoperazone alone (group A), and 41 patients with the combination of cefoperazone and amikacin (group B). The data about planned nursing interventions were collected from the health care plan. Nursing interventions serving in prevention of development of FN in severely neutropenic patients are as follows: everyday check-up, the control of body temperature every 6 hours, the observation of patients and monitoring for symptoms and signs of infection, and detailed inspection of patients (exposed spots risky for infection, oral mucous membrane, intravenous spots, catheters, wounds), control of drugs which patient takes (some of them can mask signs and symptoms of infection), control of patient's personal hygiene. Nursing interventions performed during the period of FN are as follows: continual check-ups, control of vital functions every 6 h, and more frequently, as needed, 2 samples of hemoculture for aerobes and anaerobes within 30-minute period, urinoculture, smears of skin lesions and of oral mucus. As neutropenic patients are very often at high risk for severe stomatitis, identification of its symptoms and aseptic care of oral cavity are very important nursing interventions directed toward prevention of the development of stomatitis and its complications.

Results: Two hundred and forty eight out of 483 patients with severe neutropenia (51.3%) developed FN. Eighty patients of them entered our clinical study. The median duration of severe neutropenia for a group of 39 patients treated with cefoperazone alone was 5 days, while median duration of FN was 4.4 days. In 41 patients treated with cefoperazone and amikacin, the median duration of neutropenia grade 4 was 6 days, and the duration of FN was 4 days. Documented clinical infections in both groups of patients are presented on Table 1. In 7 and 14 patients in groups A and B, respectively urinoculture was positive. Furthermore, hemoculture was positive in 8 patients in both treatment arms. Nine patients developed stomatitis grade 1 and grade 2, without further complications.

Conclusion: Our results reveal the substantial contribution of nursing health care in neutropenic patients and those with FN in preventing and in time treating these complications.

Table 1. Documented clinical infections

<table>
<thead>
<tr>
<th>Type of Infection</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Stomatitis grade 1-2</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Pharyngitis</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Proctitis</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Abscess</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Perineal cellulitis</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>