Results: Overall incidence of complications between devices was significant: 9.6 per 1000 days PICCs and 2.3 per 1000 days for ports ($p = 0.054$). Ports were superior to PICCs in terms of infection (11% v 31%; $p = 0.014$). Time from device insertion to infection averaged 33 days for ports and 3 days for PICCS. 7.8% of PICC lines dislodged. There was no significant difference between the port and PICC group with respect to thrombus formation and withdrawal occlusion. Port extrusion and palpitations occurred in 1.4% port population. Hospital stay due to device related complications were comparable. The mean duration of a chemotherapy course was 145 days for PICC line group and 130 days for the port group. 21% of subjects with implanted ports received a second course of chemotherapy through the device. The PICC line is logistically easier to insert and remove. The total cost of a PICC line was less expensive than a port (*432.00 euro V *2,711 euro).

Conclusion: Although the rate of complications was statistically more significant in PICCs, further analysis demonstrated that the type and site of these complications did not warrant substantial intervention compared to ports. This combined with the lower costs, would justify more extensive use of PICC lines in selected patients.

These findings highlight the need to conduct a larger study to further evaluate the cost effectiveness of both devices.

1564 ORAL

Substitution of the heparinized solution with the use of positive pressure and a normal saline solution when washing indwelling ports in oncological patients

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Background: Since literature is still unclear and there is no available data regarding the correct maintenance of Ports, we would like to evaluate if a correct technique to maintain positive pressure during washing can replace the necessity of using heparinized solutions. The confirmation of this hypothesis could favour self-Port management by patients, avoiding patient anxiety and infection risk (eg. dilution of heparin).

Material and Methods: From September 2004 to April 2005 we enrolled 150 patients with advanced solid tumours undergoing chemotherapy or other intravenous pharmacological treatments (eg. diphosphonates) weekly or at least every three-four weeks through an implanted Port. They signed informed written consent. In these patients at the end of chemotherapy or other pharmacological treatment administrated we washed the port with 20 ml of physiologic solution maintaining positive pressure until needle removal. Patients that underwent continuous infusion were not included. We evaluated Port functioning every time at the moment of taking blood samples and the our results were classified in:

a. Normal (correct functioning of Port);
b. Partial occlusion (we were able to infuse but not to take blood);
c. Complete occlusion (we were not able to infuse or to take blood);

Results: 109 patients have been evaluated because they concluded at least three months on study. In 800 observations we found 788 correct functioning Ports and 12 partial occlusions of which only one of them was found for two consecutive times. We haven't observed any infections or complete occlusions. Among the 12 cases with partial occlusion there was no significant correlation with washing frequency or Port anatomic position. Recruitment is still open.

Conclusions: Our data are encouraging and confirm the importance of a correct injection technique instead of Heparin use to preserve Port functioning. We observed a lower incidence of complications than what was described with the use of heparinized solution, but a second phase of study will certainly be necessary to evaluate and confirm our results by patients self care in the home environment.

1565 ORAL

Objective measurements of radiotherapy induced erythema in breast cancer patients treated with electrons to 50 Gy after mastectomy

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Background: Although Radiotherapy is an important cancer treatment method, it is afflicted with adverse side effects. Breast cancer is the most frequent cancer form among women in Sweden with about 6300 new cases per year. Up to 95% of patients treated with external radiotherapy will experience some form of skin reaction with individual differences. Most studies validate the extent of erythema with subjective analysis such as visual inspection. In the present study, different techniques were implemented to monitor erythema in an objective manner. The purpose was to present evidence for individual differences in the radiation response of human skin treated with high energy electrons.

Material and Methods: The participants ($n = 50$) were women with breast cancer who had undergone total mastectomy and were subjected to treatment with high energy electrons; 2 Gy/day for a total of 50 Gy. The skin of the patients was measured with Laser Doppler and a Digital RGB camera. The reference measurement is the measurement taken before treatment (digital photography) or on unradiated skin (laser doppler). The Laser Doppler measurements are univariate average perfusion results over an area of 7 cm^2. The digital images were converted to multivariate data by taking the average, standard deviation and skewness of the red, green and blue channels.

Analysis: The Laser Doppler data can easily be converted to univariate curves. For the image data, the data space was reduced from the original nine variables to two scores by principal component analysis. The two scores explain 99% of the total variance.

Results: For many of the patients, the Laser Doppler results showed an increase in average perfusion, but some patients showed no changes at all. The standard deviation of perfusion without radiation was 17 units. Given this it can be shown that many patients end up higher than three standard deviations above the mean during radiation, usually after a dose from 34 Gy-50 Gy. The multivariate results of the camera data are shown in a score plot of the two largest scores (95.3 resp. 3.7%). The score plot shows a high variation in the data, but also a marked difference between nonirradiated skin and skin radiated with over 34 Gy.

Conclusion: With this objective method, it is possible to show an accurate evaluation of the visible acute skin reactions. The result show a high interindividual variation and radiotherapy induced erythema can be a possible marker for individual acute radiosensitivity. Further research is needed to explore if a high grade of erythema will be of any significant importance for local control.

Joint EONS/ESO symposium
Communication with cancer patients

1566 INVITED

Introduction on communication

J.A.D. Foubert. *Erasmushogeschool, Gezondheidszorg, Jette, Belgium*

Communication among human beings is complex and often is neither linear nor necessarily accurate. In the oncology setting, patients interact with a variety of healthcare providers.

Communication skills are the cornerstone of the patient-provider relationship in cancer care.

This relationship can be complicated by patient and family perceptions and expectations, emotional state and disease course. Cancer diagnoses and treatment often produce anxiety in patients and families who need time to discuss their psychosocial concerns.

Therefore healthcare providers must possess excellent communication skills. Lack of these skills can diminish patient disclosure, increase patient anxiety and decrease satisfaction with care. Communication skills are not often assessed by healthcare professionals.

Communication skills for all oncology professionals are worthy of evaluation and development as an important component of oncology care (Fallowfield et al., 2002).

Oncology nurses are aware of the need for sensitive communication between patients and their providers and a number of training programs are existing.

Future research is needed to assess the flow, content and style of communication at particular points in patient's disease and treatment. Finally, standardized observational instruments are needed to assess the effectiveness of communication skills training programs.

References

[1] Clinical Journal of Oncology Nursing, vol. 9, number 3, the effectiveness of skills training workshops.

1567 INVITED

Communication needs of cancer patients

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The biggest problem faced by cancer patients is access to information – that was the result of a survey of 130 patient organisations carried out by the European Cancer Patient Coalition (ECPC) in 2004. Second biggest problem – access to appropriate treatment.

I am a television presenter who survived advanced colorectal cancer and now chair the Board of the ECPC. When I was diagnosed, 14 years ago, doctors in the UK were not trained in communication skills. I had no specialist nurse to offer support. I couldn't find any information about colorectal cancer. Looking back, it seems like the dark ages.

Over the years I have heard from and talked to thousands of cancer patients about their experiences of the cancer journey. To summarise – the communication needs of cancer patients include:

- the right information at the right time
- the need to see the person not the disease
- treating patients with dignity, as partners in their care
- helping with informed choices/treatment plans/even reassurance about best practice
- the importance of medical support after diagnosis, especially specialist nurses
- enabling the sharing of experiences with appropriate trained patients who have already survived/travelled the journey
- the opportunity to join support groups

The right information at the right time includes:

- availability of simple written detail about what might happen at each stage of the journey
- access to medical professionals
- knowledge of the importance of health literacy – language, readability, ethnicity, spoken alternatives to written material
- informed choice increasingly involving questions like "how good is my hospital? How can I get a second opinion without compromising care?"
- other sources of help/support including patient organisations, the internet, financial support

Ways of finding out what cancer patients need from their hospitals/institutions:

- "patient feedback parties", pioneered at a fifth of colorectal cancer units in the UK
- cultivating UIPs (uniquely informed patients) who have a wider perspective than their own experience
- the TV "Point of View" trick

The motto of the European Cancer Patient Coalition is – Nothing About Us, Without Us! To get the communication needs of patients right – patients need to be involved.

1568 Abstract not received

1569 INVITED

Educating oncology professionals to effective and culturally sensitive communication with their patients

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Communication is the basis of any human relationship, including the one between the patient and the health care provider. In oncology, communication is especially difficult, due to the complexity of the illness and its treatments and to the intense, and often extreme, physical and psychological suffering that is associated with many cancers. Moreover, cultural differences between the patient and the health care provider are often a source of misunderstandings and disagreements at the bedside. Thus, effective communication in the clinics needs to be culturally sensitive. Each person's identity is shaped by her culture. Culture provides each person with a reference framework to interpret the world and to relate to both external and internal events, including illness.

One of the key elements of culturally competent cancer care is understanding and respecting cultural differences in truth telling about diagnosis, prognosis, treatment decisions and end-of-life matters [1]. Communication in clinical medicine goes beyond simple unilateral information and it rather involves a bilateral constant honest exchange between the partners. It is well known that insufficient and/or improper information can hinder the possibility of effective communication between the patient and the health care provider from the beginning. However, there are major differences in patients' and health care providers' truth telling preferences, attitudes and practices [2]. Most of these differences in truth telling arise from the delicate interplay between the principles of autonomy and beneficence in medicine, under the influence of cultural variables [3]. In healthcare, patient autonomy is the leading principle of Anglo-American bioethics, where truth telling is considered a necessary requirement for self-determination. However, many cultures are centered around family and community values rather than on individual self governance, and in clinical medicine partial or non-disclosure of the truth to cancer patients are often favored. While there is a trend toward increasing information about cancer diagnosis throughout the world, truth telling about prognosis and end-of-life issues remains a matter of intense debate [4]. As a result of the growing number of multi-cultural medical encounters in contemporary societies, the ability to successfully negotiate cross-cultural issues has a fundamental role in the practice of oncology [1,5]. Cultural sensitivity and cultural competence [6,7] are now an essential requirement for all oncology professionals. Cultural competence entails the acquisition of specific skills and attitudes, which will be reviewed and discussed.

References

[1] Kagawa-Singer M and Blackhall LJ. Negotiating cross-cultural issues at the end of life. *JAMA* 2001; 286: 2993–3001.

[2] Various authors in: Surbone A and Zwitter M (eds). Communication with the cancer patient: information and truth. *Ann. NY Acad Sci*. 1997; 809. Reprinted by Johns Hopkins University Press, 2000.

[3] Pellegrino E. Is truth telling to patients a cultural artifact? (Editorial) *JAMA* 1992; 268: 1734–1735.

[4] Hagerty RC, Butow PM, Ellis PE et al. Communicating with realism and hope: Incurable cancer patients' views on the diclosure of prognosis. *J Clin Oncol* 2005; 23: 1278–1288.

[5] Surbone A. Persisting differences in truth telling throughout the world. *Supportive Care Cancer* 2003; 12: 143–146.

[6] Surbone A. Cultural competence: why? Annals Oncol 2004; 15:697–699.

[7] Gostin LO. Informed consent, cultural sensitivity and respect for persons. *JAMA* 1995; 274:844–845.

1570 INVITED

Information technology tools in support of patient communication

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Background: Internet communication technology (ICT) gives access to a massive body of information about cancer treatment and has been increasingly used through the last decade. In North America 64% of the population now seek health information on-line, while only 23% of the population in Europe (range 41−12%) use the internet for health information.

ICT is increasingly used by cancer patients for information and support. A number of studies on the internet use of people with cancer find, that increased well-being is related to using internet based support groups and internet health information.

Discussion: Creating environments for information and communication, making the most and the best of ICT in cancer care face several challenges: access to ICT is unequally distributed and the quality of health information on the internet is uneven.

There is growing evidence that cancer patients are empowered by use of the internet to take an active role in their treatment decision-making process. Research also finds that the internet continues to play an important role for cancer survivors after finishing medical treatment.

Oncology professionals can use the internet as a patient educational tool giving the patient time to absorb sometimes complicated information. The internet has also been used successfully to monitor symptoms and side-effects of cancer treatment. Through the internet new possibilities emerge for providing different cancer interventions to patients, without regard to time or place. It has furthermore been found that ICT in cancer care has a potential to reach underserved populations, but access to ICT is still a problem in this population.

However, the use of ICT for information and support does not necessarily result in better patient-provider communication. Patients often convey that while being well informed, enhanced empowerment and control on a personal level, the attempt to engage actively in the decision-making process is met with hostility and irritation by health professionals. Health care providers on the other hand describe, that they experience patient to form unrealistic expectations and unnecessary anxiety based on information from the internet, and they feel unable to answer to such demands.

Educating patients and providers to utilise the benefits of ICT is important to enable the best use of the internet in cancer care.

Conclusion: Internet communication technology holds a large potential to empower cancer patients and develop new initiatives in cancer care.