*Journal of BUON* **15:** 127-130, 2010


*ORIGINAL ARTICLE*

# Do we know how many cancer patients have a family history of cancer?

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## Summary

***Purpose:*** *It has been estimated that approximately 5-10% of the general population have a family history that is indicative of hereditary cancer, predominately breast and colorectal. However, it is not precisely known how many patients have positive family history of cancer. The purpose of this study was to determine how many cancer patients have positive family history of cancer.*

***Methods:*** *Patients were interviewed during the first visit to Daily Chemotherapy Hospital (DCH) of the Institute for Oncology and Radiology of Serbia, Belgrade. Data about patient cancer type and cancer types among family members were recorded in the hospital chart and analyzed.*

***Results:*** *During an 8-month period, 677 newly diagnosed cancer patients with 9 cancer types were referred to DCH for chemotherapy. Positive family history (at least one first degree relative) for any cancer type was recorded in 163 (24.1%) patients and in 47 (6.9%) patients for the same cancer type. The highest percentage of the positive family history for the same type of cancer showed patients with breast cancer (9.9%), followed by colorectal (7.2%) and brain tumors (6.25%).*

***Conclusion:*** *The overall incidence of positive family cancer history was 31.0% and was higher than expected. Cancer can be more disturbing for persons who already had experience with this disease in a close family member. Those patients need special attention with more intensive and carefully preplanned psychological support.*

**Key words:** emotional distress, family history, hereditary cancer, psychological support

## Introduction

Family history is an important indicator of familial aggregation of a disease in a family. A strong genetic risk factor or an environmental risk factor with high familial correlation can result in a strong family history [1]. Several population-based studies that investigate genetic or environmental influences on the development of a malignant disease have been performed [1-6].

In a large Icelandic study, 7 cancer types with the highest increased familial occurrence both in close and distant relatives were breast, prostate, stomach, lung, colon, kidney and bladder cancers and interestingly 3 cancers (stomach, lung and colon cancer) were also seen more frequently in mates of patients, indicating a shared environmental risk factor. For some cancers there was a familial association with other cancers, for example, relatives of individuals with stomach, colon, rectal or endometrial cancer were more likely to have any of these cancers [2]. How generalizable are these results for the biological understanding of cancer? The answer is in future investigations of complex interrelationships that interact to produce a malignant condition [2,3].

Besides, family history can be used for estimating familial risk for cancer. Familial risks for cancer are important for clinical counseling and understanding cancer etiology [7,8]. Assessment of familial risk for cancer may be used as a guide to gene identification and mode of inheritance [9]. Also, researchers suggest that family history alone can increase cancer mutation risk [10-12].

Finally, in developing countries, where genetic studies are rarely applied in clinical practice, the use of family history becomes important for patient care, as it is low-cost strategy and a risk assessment tool, so col-

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Received 24-05-2009; Accepted 06-08-2009

lecting the data about family history for every patient is mandatory [13].

It has been estimated that approximately 5-10% of the general population have a family history that is indicative of hereditary cancer, predominantly breast and colorectal. However, limited information is available about the overall percent of cancer patients with positive family history no matter whether this is hereditary cancer or *de novo* mutation.

The purpose of this study was to define the percent of cancer patients with positive family history, considering positive family history for any cancer type and for the same cancer type in at least one first degree relative. In addition we analysed the distribution of the most commonly reported cancers in a group of patients with positive family history for any cancer type.

## Methods

Patients were interviewed during the first visit to the DCH of the Institute for Oncology and Radiology of Serbia, Belgrade. The family history of cancer among first degree relatives was investigated. Data about patient cancer type and cancer types among family members were recorded in the hospital charts and analysed.

Patients were divided into 9 groups considering primary cancer localization. These groups were divided into two subgroups according to positive family history for any type of cancer (different from the cancer type of the interviewed patient) and positive family history for the same type of cancer. Data were analysed according to patient cancer type and cancer type reported in first degree family members. Positive family history of cancer was defined as a history of any type of cancer within at least one first degree relative. The results are presented in absolute numbers and percentages.

## Results

During an 8-month period, 677 newly diagnosed cancer patients with 9 cancer types were referred to DCH for chemotherapy. There were 210/677 (31.0%) patients with positive family history for cancer. Among them 163/677 (24.1%) reported positive family history for any type of cancer and 47/677 (6.9%) for the same type of cancer.

Breast cancer: among 293 patients, 84 (28.79%) reported positive family history for any type of cancer and 29 (9.9 %) had at least one first degree relative with breast cancer.

Colorectal cancer: among 194 patients, 40 (20.6%) had positive family history for any cancer type and 14 (7.2%) had at least one first degree relative with colorectal cancer.

Prostate cancer: among 58 patients, 11 (18.9%) had positive family history for any cancer type and 3 (5.2%) had at least one first degree relative with prostate cancer.

Brain tumors: among 16 patients, 8 (50%) had positive family history for any type of cancer and one (6.25%) had at least one first degree relative with the same tumor type.

Among other cancer types, positive family cancer history was registered in ovarian cancer 14/52 (26.9 %), uterine cervix cancer 3/24 (12.5%), lung cancer 2/15 (13.0%), head and neck cancer 1/21 (4.8%), and renal cell carcinoma 1/4 (25%). None of the patients from this subgroup had any relative with the same cancer type (Table 1).

The highest percentage of positive family history was recorded in the group of patients who had at least one first degree relative with any cancer type, with an overall percent of 24.1%. The highest number of first degree relatives with any cancer type had patients with

**Table 1.** Distribution of positive family history by cancer type

| *Cancer type* | *Patients, n* | *Positive family history for any cancer type n (%)* | *Positive family history for the same cancer type n (%)* |
|---|---|---|---|
| Breast | 293 | 84 (28.7) | 29 (9.90) |
| Colorectal | 194 | 40 (20.6) | 14 (7.20) |
| Prostate | 58 | 11 (18.9) | 3 (5.20) |
| Brain | 16 | 8 (50.0) | 1 (6.25) |
| Ovarian | 52 | 14 (26.9) | 0 |
| Uterine cervix | 24 | 3 (12.5) | 0 |
| Lung | 15 | 2 (13.0) | 0 |
| Head and neck | 21 | 1 (4.80) | 0 |
| Renal cell | 4 | 1 (25.0) | 0 |
| Total | 677 | 163 (24.1) | 47 (6.90) |

brain tumors (50%), followed by patients with breast cancer (28.7%), ovarian cancer (26.9%), renal cell cancer (25%), colorectal cancer (20.6%), prostate cancer (18.9%), lung cancer (13.0%), uterine cervix cancer (12.5%), and head and neck cancer (4.8%).

The total number of patients in the group with the same cancer type was 47, i.e. 6.9% of patients with at least one first degree relative with the same cancer. The highest percent of positive family history for the same type of cancer was recorded in patients with breast cancer (9.9%), followed by colorectal cancer (7.2%), brain tumors (6.25%), and prostate cancer (5.2%). No patient with ovarian, uterine cervix, lung, head and neck, and renal cell cancers had any relative with the same cancer type.

The most frequently reported cancer in a group of patients with positive family history for any cancer type was lung cancer 22/163 (13.5%), followed by breast cancer 14/163 (8.5%), colorectal cancer 14/163 (8.5%), endometrial cancer 9/163 (5.5%), prostate cancer 8/163 (4.9%), brain tumors 5/163 (3.1%), ovarian cancer 3/163 (1.8%), cervical cancer 3/163 (1.8%), renal cell cancer 3/163 (1.8%), and head and neck cancer 1/163 (0.6%). Distribution of the most frequently reported cancers in any cancer type subgroup is shown in Table 2.

## Discussion

The overall percent of our patients with positive family history for cancer was high (31.0%), higher than expected. Almost one third of our patients had at least one first degree family member with cancer. Data about family history were collected for every patient, although age at diagnosis and histological verification were frequently missing. A study by Murf et al. had shown that adequate cancer risk assessment using family history information requires age of relatives at cancer diagnosis and specification of a cancer diagnosis [15].

**Table 2.** Distribution of the most frequently reported cancers in any cancer type subgroup

| *Cancer type* | *Patients, n* | *%* |
|---|---|---|
| Lung | 22 | 13.5 |
| Breast | 14 | 8.5 |
| Colorectal | 14 | 8.5 |
| Endometrial | 9 | 5.5 |
| Prostate | 8 | 4.9 |
| Brain tumors | 5 | 3.1 |
| Ovarian | 3 | 1.8 |
| Cervical | 3 | 1.8 |
| Renal cell | 3 | 1.8 |
| Head and neck | 1 | 0.6 |
| Total | 163 | 100.0 |

In our study population 24.1% had a positive family history of cancer, but not for the same cancer type. The most frequently reported cancers among their relatives were lung, breast and colorectal and this is in concordance with the epidemiological situation in our country [16].

In a group of patients with positive family history for the same cancer type the overall percent was 6.9%. Among them, patients with breast and colorectal cancer had the highest number of first degree relatives with the same type of cancer and our results are similar to the literature data [14].

Familial clustering of cancers, which are not known to belong to an inherited cancer syndrome, are often overlooked by medical referral systems, so a study providing data on familial risks in all common cancers was performed using the data from the nationwide Swedish family cancer database. The data convincingly showed that familial clustering is a common feature for all cancer sites [17].

Besides, researchers suggest that patients, especially with breast cancer, who had positive family history are at increased risk of second primary cancer [18].

A thorough family history data should be collected for every patient at all levels of the medical referral system. That will be helpful in implementing guidelines for clinical genetic counseling [17,19].

A study by Kim et al. has shown that even healthy women with positive family history have higher level of cancer-specific distress (intrusive thoughts and avoidance) and general distress than women without such family history [20]. Throughout our everyday clinical practice we have noticed that cancer patients who had a close family member with cancer refer to hospital in more advanced stages of a malignant disease and more frequently refuse the recommended treatment options. This suggests that experience with cancer in the family can not be neglected.

Also, we have noticed that the relevant literature which investigates emotional disorders in patients already diagnosed with cancer who experienced cancer in the family is insufficient and it only refers to healthy individuals with positive family history. Investigations of the level of emotional distress among cancer patients should be performed in order to organize a more proper management.

The importance of studying psychooncology aspects is even bigger since emotional distress has been recognized as the 6th vital sign of cancer. There is evidence that individuals who had experience with cancer in a close family member need to be stratified in a spe-

cial group with specific kind of psychological support not only during prevention, but also at diagnosis, starting treatment and throughout the treatment period [21].

Preliminary results of this study were presented at the 7th Congress of Balkan Union of Oncology, October 15-19, 2008, Kusadasi - Turkey and awarded as the best poster presentation.

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