PREVENTIVE ONCOLOGIC CHECK-UPS IN THE DISTRICT ŠUMPERK, 1975–1986: THE DESCRIPTION OF A DATABASE

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From 1975 through 1986, repeated preventive oncologic check-ups were carried out in the District Šumperk. In the course of the check-ups, 49,426 persons were examined. The examinations were aimed at surveillance of initial stadium of cancers as well as at detection of other serious chronic diseases. The results of the check-ups form a large database suitable for a number of epidemiological analyses.

In this article, methods of the data collection are described, individual data items are characterized and their summary is presented in tables. Utilization of the database is proposed in specified types of epidemiological studies.

INTRODUCTION

In 1975, verification of the effectiveness of repeated preventive check-ups was commenced under the guidance of the Ministry of Health of the Czech Republic. The District Šumperk was one of the four districts selected for the project. Originally, the check-ups were exclusively aimed at the early surveillance of initial stadium of cancers. At the very beginning, however, surveillance of other serious chronic diseases, especially of diabetes and hypertension, was included.

The early detection of serious diseases as well as increasing of the population health consciousness were the main objectives of that extensive preventive campaign.

In 1986, the check-ups carried out in the District Šumperk were terminated without any further analysis of the health status of the population. Nevertheless, the records collected in the course of the campaign form a large and unique database. Epidemiological studies analysing such large databases can provide valuable information concerning the relationship between various risk factors and cardiovascular and metabolic diseases, respectively[1, 6, 8, 10].

METHODS OF THE DATA COLLECTION

The check-ups were commenced in 1975 and repeated in 1979 and 1982, respectively. The time schedule was as follows:

1st check-ups – 1975–1978
2nd check-ups – 1979–1981
3rd check-ups – 1982–1986

The examinations were preceded by an information campaign guaranteed by local newspaper, leaflets, and lectures. The check-ups were accomplished by general practitioners, hospital physicians, and specialists. All participating physicians were trained in the uniform methods of the data collection. Certain variation exists, however, in the data level obtained from individual physicians; careful approach to the data level assessment and their further analysis is essential.

Men and women aged 30–64 were examined. They were invited on basis of the lists of electors.

The check-ups consisted of history records, clinical examinations, and laboratory tests.

History records contained family history including smoking habits and personal and occupational history. Clinical examinations consisted of examination of skin, palpable lymphatic nodes, breasts, abdomen, genitals, and rectum in women. In men, skin, palpable lymphatic nodes, mouth cavity, abdomen, rectum, and prostate were examined and their chest X-rays were made. Body height, body weight, pulse rate, systolic and diastolic blood pressure were recorded for both sexes. Laboratory

tests included blood sedimentation, blood group, glycae-mia, total cholesterolaemia, uricaemia, and urine examination focused on detection of the presence of glucose, protein, urobilinogen and blood. Nonspecific tests of stomach acidity and occult stool bleeding were included.

The examinations were analysed and oncologic findings and the stage of cancer risk were assessed[3]. All the preventive check-up records were collected and adjusted for computer analysis at the Oncology Department in Šumperk.

CHARACTERISTICS OF THE DATABASE

At present, a computer data base is available, which includes:

49,426 persons with the record of the first check-up

40,394 persons with the record of two check-ups

1,736 persons with the record of three successive check-ups

In the course of the first check-ups, 22,857 men and 26,569 women were examined. In general, men and women aged 30 – 64 were examined; a small proportion of them were either younger or older. Mean age of the patients was 46 years (min. 18 – max.76 years, s.d. 9.96). In Table 1, numbers of examined men and women are summarized according to their marital status. Specified diseases in the patients' family and personal history are presented in Tables 2 and 3, respectively.

Exposure to harmful factors of the working environment was assessed in occupational history. Number of years of exposure to chemicals, ionising radiation, physical factors, and infectious material were assessed (Tab. 4).

Results of clinical examination categorized as negative, suspected, or positive oncologic findings are summarized in Table 5.

The results of laboratory tests included values of glycaemia, cholesterolaemia, uricaemia (frequencies of normal and abnormal values are summarized in Tab. 6), blood group (Tab. 7), blood sedimentation and tests of urine.

POSSIBILITIES OF UTILIZATION OF THE DATABASE

Data collected in the course of carrying out the preventive oncologic check-ups form a large database suitable for analysis in the following types of epidemiological studies:

1. descriptive studies mapping the prevalence of risk factors for chronic diseases – hypertension, BMI, hypercholesterolaemia, smoking etc. – according to sex and age group;

2. descriptive studies focused on the prevalence of cancers and cardiovascular diseases and diabetes mellitus;

Table 1. Marital status

marital status	frequency	percent
single	1,296	2.6
married	24,748	50.1
divorced	1,213	2.5
widowed	1,074	2.2
missing data	21,096	42.7
total	49,426	100.0

Table 2. Family history

family history of:	frequency	percent
malignant tumour	9,990	20.2
hypertension	6,119	12.4
cerebral stroke	4,128	8.4
heart stroke	4,202	8.5
diabetess mellitus	3,270	6.6
missing data	18	0.0

Table 3. Personal history

personal history of:	frequency	percent
negative	44,560	90.2
malignant tumour	216	0.4
hypertension	3,513	7.1
cerebral stroke	104	0.2
heart stroke	514	1.0
diabetes mellitus	1,045	2.1
missing data	2	0.0

Table 4. Occupational history

exposition to:	frequency	percent
chemical hazards	866	1.8
ionizing radiation	457	0.9
other physical hazards	0	0
infectious material	0	0
total	49,426	100.0

Table 5. Oncologic findings

oncologic findings	frequency	percent
negative	49,050	99.2
suspected	64	0.1
positive	309	0.6
missing data	3	0.0
total	49,426	100.0

Table 6. Laboratory tests

values of:	frequency	percent
glycaemia < 6.7 mmol/l	22,124	47.8
glycaemia > 6.7 mmol/l	1,554	3.1
cholesterolaemia < 5.2 mmol/l	5,880	11.9
cholesterolaemia > 5.2 mmol/l	19,008	38.5
uricaemia (men) < 420 μmol/l	8,064	35.3
uricaemia (men) > 420 μmol/l	1,415	6.2
uricaemia (women) < 360 μmol/l	8,739	32.9
uricaemia (women) > 360 μmol/l	1,216	4.6

Table 7. Blood groups

blood group	frequency	percent
A	19,747	39.9
B	7,236	14.6
AB	3,106	6.3
0	13,618	27.6
missing data	5,719	11.6
total	49,426	100.0

3. descriptive studies summarizing frequencies of particular causes of death.

After merging the database with the data from the Regional Cancer Registry, analytical case-control and historical cohort studies will be enabled, dealing with the associations between individual risk factors and developing certain cancers, cardiovascular and metabolic diseases (e.g. the associations between obesity and development of kidney cancer, between the borderline values of glycaemia and development of diabetes mellitus etc.)[2, 4, 5, 7, 9].

In still living and willing to participate persons, current check-ups will be carried out, thus enabling the evaluation of the trend of the risk factors.

SUMMARY

From 1975 through 1986, repeated preventive oncologic check-ups were conducted in the District Šumperk, aimed at the early detection of cancers and other serious chronic diseases. The data collected in the course of the examinations form a unique database, containing a large sum of data. After filtration of the data and recoding a part of the diagnoses according to the actual revision of International Classification of Diseases, the database will be prepared for analysis through descriptive, case-control and historical cohort studies. The results of the studies will enhance the understanding of the genesis of serious chronic diseases and will be able to contribute to formulating the strategy of national primary preventive programmes.

REFERENCES

1. Anderson H, Bladstrom A, Olsson H, Moller TR (2000) Familial breast and ovarian cancer: a Swedish population-based register study. Am J Epidemiol *152* (12), 1154–63.
2. Chow WH, Gridley G, Fraumeni JF, Jaryholm B (2000) Obesity, hypertension, and the risk of kidney cancer in men. N Engl J Med *343* (18), 5–11.
3. The experience with health education in the course of the preventive oncologic check-ups. (1977) Ministry of Health of the Czech Republic, the Department of Health Education, Prague.
4. Grundy SM (2000) Metabolic complications of obesity. Endocrine *13* (2), 155–65.
5. Lindgren A, Pukkala E, Nissinen A (2001) Cancer incidence in hypertensive patients in North Karelia, Finland. Hypertension *37* (5), 1251–5.
6. Mahonen M, Salomaa V, Keskimaki I, Moltchanov V (2000) The feasibility of routine mortality and morbidity register data linkage to study the occurrence of acute coronary heart disease events in Finland. Eur J Epidemiol *16* (8), 701–11.
7. Manjer J, Kaaks R, Riboli E, Berglund G (2000) Risk of breast cancer in relation to anthropometry, blood pressure, blood lipids, and glucose metabolism: a prospective study within the Malmo Preventive Project. Eur J Cancer Prev *10* (1), 33–4.
8. Planck M, Anderson H, Bladstrom A (2000) Increased cancer risk in offspring of women with colorectal carcinoma: a Swedish register-based cohort study. Cancer *89* (4), 741–9.
9. Wolk A, Gridley G, Svensson M, Nyren O, McLaughlin JK, Fraumeni JF, Adam HO (2001) A prospective study of obesity and cancer risk (Sweden). Cancer Causes and Control Jan 2001 *12* (1), 13–21.
10. Wong O, Raabe GK (2000) A critical review of cancer epidemiology in the petroleum industry, with a meta-analysis of a combined data base of more than 350,000 workers. Regulatory Toxicol Pharmacol *32* (1), 78–98.