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ARTICLE

Cancer Epidemiology in Hungary and the Béla Johan National Program for the Decade of Health

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According to a recent survey, in 1995 Hungary lead cancer mortality statistics in men in Europe, while was on the second place in the case of women. The figures for cancer morbidity were highly similar. According to cancer types, the Hungarian mortality rates are the worst in the case of lung, oral cavity laryngeal and pancreatic cancers among men and oral cavity colorectal and thyroid cancers in women. Between 1999 and 2001 in Hungary the cancer mortality list is topped by lung and colorectal cancers among men and by breast and colorectal cancers among women. The National Cancer Registry started to provide reliable morbidity data which indicate that in 2001 in Hungary the men's most frequent cancer types are lung, colorectal and lip and mouth cancers while among women breast, colorectal and lung cancers. These shocking cancer mortality and morbidity figures outlined the primary targets of the recently lunched national public health program for this decade. (Pathology Oncology Research Vol 9, No 2, 126–130, 2003)

Keywords: cancer epidemiology, Hungary, morbidity, mortality

Epidemiological background of the issue

The distressing state of health of the Hungarian population is widely known. Long-term health impairment, an exceptionally high death rate at an early age, men's "shortest life expectancy" to mention only a few, have an unfavorable effect on the life perspectives and potential of the Hungarian population. The death rate in Hungary due to malignant tumors is also exceptionally unfavorable. It is the second most common cause of death after heart and circulatory failures, with a rate of approximately 25%. Disability statistics indicate that the amount of patients becoming disabled due to malignant tumors grew by 100% over the last 25 years despite the tightening of disability regulations. In large scale European and international cancer mortality surveys placed Hungarian men to the first and women to the second place. These facts must have severe impact on the design of health policies.[2-5,7-9]

In the last 10 years the National Institute of Oncology in Budapest analyzed these phenomena and established the National Cancer Control Program defining domestic opportunities and meeting international expectations. Based on wide professional cooperations, it also published a series of urgently needed handbooks regarded as guidelines in several fields of oncology.

Since tumor-related diseases present a serious public health problem both for the health care system and for the entire society, the "Public Health Program for a Healthy Nation 2001-2010" integrated the National Cancer Control Program, the elements of which were included into a separate sub-program under the title "Prevention of Cancer".[4]

In order to decrease the exceptionally high cancer mortality rate we must become familiar with the data provided by mortality statistics and the National Cancer Registry. The registry covers all cancer patients discovered in the previous calendar year (both in- and outpatients). Its data contain the year of discovery, the tumor size upon discovery, the morphological code, all therapeutic interventions. This database must be compared to the international – mainly European – studies and statistical analyses before we can establish the appropriate anticancer strategy.[7]

A detailed data collection by the Unit of Descriptive Epidemiology (International Agency for Research on

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Table 1. Ranking of Hungary in European cancer mortality, 1995 (data refer to 100 000 inhabitants)

	Men			*Women*	
	Europe	*275.0*		*Europe*	*147.3*
	EU	*260.4*		*EU*	*144.7*
1	**Hungary**	392.1	1	Denmark	205.4
2	Czech Republic	343.4	2	**Hungary**	204.5
3	Slovakia	324.2	3	Czech Republic	188.7
4	Croatia	311.7	4	Ireland	176.4
5	Russia	308.8	5	United Kingdom	175.6
6-7	Estonia	302.8	6	Iceland	175.5
	Slovenia				

Table 2. Ranking of Hungary in European cancer morbidity, 1995 (data refer to 100 000 inhabitants)

	Men			*Women*	
	Europe	*415.1*		*Europe*	*283.3*
	EU	*406.4*		*EU*	*268.7*
1	**Hungary**	566.6	1	Denmark	396.2
2	Czech Republic	480.5	2	Iceland	363.4
3	Slovakia	443.1	3	**Hungary**	357.2
4	Belgium	440.7	4	Norway	340.7
5	Switzerland	439.9	5	Czech Republic	333.6
6	Italy	438.0	6	Sweden	332.8

Cancer, Lyon) was published in early 2002, containing the related data of 38 countries.[2] Countries were grouped into 4 regions according to the definition of the UNO, with Hungary belonging to the Eastern European region. Mortality data taken from country reports were provided by the WHO, while incidence data came either from the national and European cancer registries, or, if necessary, were calculated using estimates and mathematical models, based on "age standardized" principles. It can be concluded from this analysis that 1.6 million people died in Europe in 1995 due to malignant diseases. Although data indicate significant inequalities, these rates are usually higher in Eastern Europe, especially in Hungary. Lung cancer is the leader of European mortality figures, giving 20% of total mortality, followed by colorectal, stomach and breast cancers. Lung cancer tops the list for men, while breast cancer is first among women. The annual number of new cases reported in Europe – the incidence – was 2.6 million in 1996, which is 25% of total world figures. In the case of men, Western Europe is leading, with the exception of Austria and followed by Eastern Europe while Northern Europe has the lowest rates of cancer mortality. Hungary unfortunately stands out among these countries with the highest rates. Compared to Hungary, the situation in the Czech Republic is better, and only Denmark produced worse data for women than Hungary.

Hungary's place in the European cancer mortality and incidence ranking

Hungary is 1st among men and 2nd among women regarding cancer mortality statistics. In this latter case we follow Denmark closely, considerably surpassing the European average in both cases *(Table 1).* Concerning incidence, we occupy the 1st place among men as well and rank 3rd among women, with a high occurrence rate *(Table 2).*

The Hungarian Public Health Program supports the organized mass screening of cervical, breast, and colorectal cancers and also plans the screening of oral cavity cancer as well as prostate cancer in the future, considering the significant dynamic increase of the mortality and incidence rates of these cancer types. In the following we will compare Hungarian figures to the European ones in the case of the most frequent cancer types (*Table 3 and 4).*

The situation is worst in the case of women's colorectal and oral cavity cancers for both sexes, since in these areas Hungary top both the mortality as well as the European incidence lists. Hungary is placed second in case of men's colorectal cancers. In the case of the remaining cancer types, the situation is somewhat better, but we are not at the bottom of the lists either. Hungary has especially unfavorable data in the case of laryngeal, pancreatic, liver, lung, thyroid and men's oesophageal cancers as well as of leukemia.

Table 3. Ranking of Hungary in Europe in cancer mortality according to various cancer types

Cancer type	*Men*	*Women*
Oral cavity	1st	1st
Laryngeal	1st	1st–3nd
Oesophageal	2nd–3rd	14th–15th
Colorectal	2nd	1st
Pancreatic	1st	2nd
Liver	5th	3rd
Lung	1st	4th
Thyroid	2nd–3rd	1st–3rd
Breast (women)	–	8th
Cervical	–	5th
Prostatic	13th	–
Leukemia	2nd	1st

Hungarian data: Review of the present situation in Hungary

Hungarian mortality data are regularly published by the Central Office of Statistics (KSH) as reports and yearbooks.[3] Comparison of mortality data for 1999 and 2000 we have noticed an unusual phenomenon.[7] This has been the only "anniversary" for decades where the rising mortality trend was broken by 2%. Furthermore, according to the recently published KSH mortality data for the year 2001 this trend continued (*Table 5-8*).

Table 4. Ranking of Hungary in Europe in morbidity of various cancer types

Cancer type	*Men*	*Women*
Oral cavity	1st	1st
Laryngeal	1st	1st–2nd
Oesophageal	2nd	12th
Colorectal	2nd	1st
Pancreatic	1st	1st
Liver	5th	5th
Lung	1st	4th
Thyroid	6th–7th	4th
Breast (women)	–	17th
Cervical	–	4th
Prostatic	13th	–
Leukemia	2nd–3rd	3rd

Table 5. Total frequency of cancer-caused death in Hungary (1999–2001)

	1999	*2000*	*2001*
Total	34,255	33,679	33,757
Men	19,227	18,914	19,013
Women	15,028	14,765	14,744

Table 6. Cancer mortality rate for both sexes in Hungary

Cancer type	*No.*	*1999*	*2000*	*2001*	*No.*
Lung	1	7 883	7 824	7 902	1
Colorectal (C18-C21)	2	4 912	4 910	4 852	2
Breast	3	2 387	2 356	2 342	3
Gastric	4	2 306	2 167	2 166	4
Lymphopoetic	5	1 997	1 895	1 936	5
Oral	6	1 618	1 688	1 737	6
Pancreatic	7	1 562	1 546	1 561	7
Prostatic	8	1 387	1 399	1 372	8
Hepatic	9	972	946	893	9
Esophageal	10	923	843	675	13
Gall bladder	11	867	815	862	10
Urinary bladder	12	795	722	842	11
Brain	13	712	723	756	12
Total		34 255	33 679	33 757	

Table 7. Cancer mortality rate of men in Hungary

Cancer type	*No.*	*1999*	*2000*	*2001*	*No.*
Lung	1	5 797	5 727	5 741	1
Colorectal (C18-C21)	2	2 598	2 514	2 594	2
Prostatic	3	1 387	1 399	1 316	5
Oral (C00-C14)	4	1 361	1 413	1 372	4
Gastric	5	1 354	1 256	1 432	3
Lymphopoetic (C81-C95)	6	1 048	987	991	6
Pancreatic	7	771	789	781	7
Esophageal	8	607	588	566	9
Laryngeal	9	591	536	525	11
Urinary bladder	10	579	600	609	8
Hepatic	11	543	563	546	10
Kidney	12	497	475	475	12
Brain	13	373	367	383	13
Gall bladder	14	259	266	243	14
Melanoma	15	157	170	188	15
Total		19 227	18 914	19 013	

Cancer morbidity data for Hungary has been an unsolved problem during the last few decades. We could only estimate the number and nature of annual national new tumor cases providing a wide margin for errors. The National Cancer Registry (at the National Institute of Oncology) has been working more and more reliably year by year and the incidence data for 2001 now provide key information for health policy makers (*Table 9 and 10*). In 2001 58,772 cancers were reported for both sexes in 51,136 patients, due to multiple tumors in some patients (cancer/patient ratio: 112/100).

The present Hungarian statistics, but not the international ones, still contain "non-pigmented" skin cancers in relatively high number (6,379). We do not know the incidence of these skin cancers in multiple tumors, nor do we know how they influence the number of cancer patients. Accordingly, it is necessary to further "clean up" these data and to harmonize with international standards.

Establishment of cancer strategy in Hungary

We can state that there is an "epidemiological crisis" in Hungary, meaning that the socio-economical level of development does not explain the exceptionally high cancer mortality rates.[8] Our self-destructive way of life is known to have been the standard for decades.[10] Our consumption habits are disadvantageous: our diet is rich in

Table 8. Cancer mortality rate of women in Hungary

Cancer type	*No.*	*1999*	*2000*	*2001*	*No.*
Breast	1	2 356	2 316	2 304	1
Colorectal (C18-C21)	2	2 314	2 372	2 258	2
Lung	3	2 086	2 097	2 161	3
Gastric	4	952	911	850	5
Lymphopoetic (C81-C95)	5	949	908	945	4
Pancreatic	6	791	757	780	6
Ovarian	7	637	652	617	8
Gall bladder	8	608	577	619	7
Cervical	9	520	496	465	10
Uterine	10	500	481	539	9
Hepatic	11	429	383	347	12
Kidney	12	354	363	330	13
Brain	13	339	256	373	11
Urinary bladder	14	216	215	233	14
Melanoma	15	158	144	137	15
Total		15 028	14 765	14 744	

grease and low in fiber, vegetables, and fruits, which certainly are risk factors. Our per capita cigarette and liqueur consumption is high, while toothpaste and toothbrush usage is low. The pollution of our environment is a persisting problem. Programs for regular cancer screenings were lacking in the past decade. The formerly planned 3-step radiotherapy development project was suspended and too many cancer cases are discovered late. We are undeniably an ageing population, but even this fact can only be regarded as a single factor, since the population in several European countries is older but cancer mortality is lower than the Hungarian figure. It has been emphasized many times that the so-called "honest" doctor-patient relationship is not working well in Hungary – due to various reasons – which affects the efficiency of patient tracking.

One basic principle for modern follow-up of cancer patients is the regular application of tumor marker determinations in sufficient number and combination. Approximately 280,000–300,000 tumor marker determinations have been carried out yearly in Hungary, apparently unplanned in its county distribution reflecting differences in approaches and/or infrastructure and experience. In Austria, Belgium and Holland 2-3.5 million tumor marker determinations are carried out yearly based on appropriate planning. This order of magnitude difference in the use of tumor markers could be partially responsible for much better cancer control in patients.[6]

It appears that while in the last 25 years the number of the leading causes of death (heart and circulatory failures)

Table 9. Newly reported cancer cases in Hungary for both sexes in 2001 based on the National Cancer Registry (58772 tumors, 51136 patients)

	Cancer type	
1	Lung (C33-C34)	8 827
2	Colorectal (C18-C21)	7 600
3	Skin	6 379
4	Breast	5 730
5	Lymphatic and haematopoetic system (C81-C95)	3 034
6	Oral cavity (C00-C14)	2 993
7	Prostatic	2 304
8	Stomach	2 175
9	Urinary bladder	2 091
10	Kidney	1 535
11	Pancreatic	1 466
12	Melanoma	1 288

Table 10. Newly reported cancer cases in Hungary according to sexes in 2001 (based on the National Cancer Registry)

	Men			*Women*	
	Cancer number	29 982		Cancer number	28 790
	Patient number	25 660		Patient number	25 476
1	Lung	6 099	1	Breast	5 610
2	Colorectal	3 981	2	Colorectal	3 619
3	*Skin	3 072	3	*Skin	3 307
4	Oral cavity	2 369	4	Lung	2 728
5	Prostatic	2 304	5	Lymphatic and haematopoetic system	1 598
6	Urinary bladder	1 436	6	Cervical	1 132
7	Lymphatic and haematopoetic system	1 436	7	Uterine	1 119
8	Stomach	1 248	8	Ovarian	1 027
9	Laryngeal	1 043	9	Stomach	927
10	Kidney	886	10	Pancreas	703
			11	Melanoma	701

*without malignant melanoma

in Hungary decreased, the figures for mental and behavioral disorders and cancer have been increased by approximately 100%. The importance of spiritual factors and "mental health" has been emphasized by several authors:[1,7,8] Austria and Finland have been facing similar problems during the past decades, and their cancer mortality data were in many ways similar to ours. However, these countries took an earlier start towards a more favorable path of social development, which brought about mental health together with wealth.

As we have shown above, Hungarian mortality data indicate that the continuous rise was broken between 1999 and 2000. We do not know the exact reason, but it is possible that beside healthcare's efforts, people are being more conscious of their health which is starting to become part of their personal (mental) hygiene.

We believe that it is possible to follow the Austrian-Finnish way. The "Public Health Program for a Healthy Nation 2001-2010", extended and continued in the future under the name „Béla Johan National Program for the Decade of Health", is a feasible strategy to achive our goals. Thus, the right "psychological moment" has come for the efforts and enthusiasm of healthcare and for the discovery and active participation of the population to meet with government policy.

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