

Cancer Statistics in Korea: Incidence, Mortality and Survival in 2005

Cancer has been the most common cause of death in Korea since 1983 and is a major public health concern. This paper overviews the nationwide cancer statistics, including incidence, mortality, and survival rates, and their trends in Korea. In 2005, 142,610 new cancer cases and 65,117 cancer deaths occurred in Korea. The incidence rate for all cancer combined increased by 2.6% annually from 1999 to 2005. Significant increases have occurred in the incidence of colorectal, thyroid, female breast, and prostate cancers. The number of cancer deaths has increased over the past two decades, due mostly to population aging, while the age-standardized mortality rates have decreased in both men and women since 2002. Notable improvement has been observed in the 5-yr relative survival rates for most major cancers and for all cancer combined, with the exception of pancreatic cancer. The nationwide cancer statistics in this paper will provide essential data for evidence-based decisions in the national cancer control program in Korea.

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Key Words : Incidence; Mortality; Survival; Neoplasms; Korea

INTRODUCTION

Cancer has been the most common cause of death in Korea since 1983 (1) and poses a major public health concern. Over 140,000 new cancer cases are diagnosed annually in Korea and one out of four deaths results from cancer (2, 3). This paper gives an overview of the nationwide cancer statistics, including the incidence, mortality, and survival rates, and their trends in Korea. This report is a part of Special Article series that presents the annually updated nationwide cancer statistics in Korea.

MATERIALS AND METHODS

Data sources

The Korea Ministry of Health and Welfare started a nationwide, hospital-based cancer registry called the Korea Central Cancer Registry (KCCR) in 1980. Details of the history, objectives, and activities of the KCCR have been documented (4). Incidence data from 1999 to 2005 were obtained from the Korea National Cancer Incidence Database (KNCI DB). Cancer cases were classified according to the *International Classification of Diseases for Oncology 3rd edition* (5) and converted according to the *International Classification of Diseases 10th edi-*

tion (ICD-10) (6). The survival analysis used 1,151,789 cancer cases first diagnosed during 1993-2005 from the KNCI DB, and followed vital status through 31 December 2006.

Mortality data from 1983 to 2005 were obtained from the Korea National Statistics Office (KNSO) (1). Cause of death was coded and classified according to the ICD-10. The population data were also obtained from KNSO using the resident registration population on 1 July.

Analysis

Crude rates (CRs) and age-specific rates of cancer incidence and mortality were calculated. Age-standardized rates (ASRs) were determined using the World Health Organization (WHO) world standard population (7). The cumulative risks of cancer incidence, which are the probability of developing cancer to the life expectancy, were also calculated. Changes in the annual age-standardized cancer incidence rates were examined by calculating the annual percentage change (APC) over a time period as $100(e-1)$, where e is the slope of the regression of log age-standardized rates on a calendar year (8).

The survival duration of each case was determined as the time difference between the date of initial diagnosis and the date of death, date of loss to follow-up, or closing date for

follow-up. Observed survival rates were calculated using a life table method and relative survival rates were examined with the Ederer II method (9) using an algorithm written in SAS by Paul Dickman (10), with some minor adaptations.

SELECTED FINDINGS

Incidence

Table 1 presents the number of new cancer cases during 2005 in Korea by sex and cancer site. In 2005, 142,610 cancer incident cases were observed. The CRs of all sites combined were 317.8 and 268.0 per 100,000 in men and women, respectively, and the ASRs of all sites combined were 303.5 and 201.4 per 100,000 (Table 2). The cumulative risks for developing a cancer to the life expectancy were 32.3% for men and 26.5% for women.

Table 2 ranks cancer incidence and mortality by sex in 2005. In males, the five leading primary sites of cancer were the stomach (CR 69.7, ASR 65.5), lung (CR 50.5, ASR 50.2), liver (CR 46.1, ASR 42.0), colon & rectum (CR 42.0, ASR 39.6), and prostate (CR 14.3, ASR 14.7), accounting for about 70% of all newly diagnosed cancers. In females, the most com-

Table 1. Number of cancer cases and deaths by sex during 2005 in Korea

Sites	New cases			Deaths		
	Both sexes	Males	Females	Both sexes	Males	Females
All sites	142,610	77,566	65,044	65,117	41,131	23,986
Lip, oral cavity & pharynx	2,151	1,558	593	844	650	194
Esophagus	2,019	1,864	155	1,422	1,309	113
Stomach	25,809	17,024	8,785	10,935	7,146	3,789
Colon & rectum	17,625	10,253	7,372	5,997	3,259	2,738
Liver	14,907	11,264	3,643	10,877	8,188	2,689
Gallbladder*	4,166	2,094	2,072	3,328	1,694	1,634
Pancreas	3,703	2,050	1,653	3,373	1,862	1,511
Larynx	1,132	1,047	85	629	567	62
Lung	16,949	12,339	4,610	13,733	10,098	3,635
Breast	9,898	56	9,842	1,589	16	1,573
Cervix uteri	3,737	-	3,737	1,066	-	1,066
Corpus uteri	1,146	-	1,146	151	-	151
Ovary	1,544	-	1,544	751	-	751
Prostate	3,487	3,487	-	900	900	-
Testis	148	148	-	11	11	-
Kidney	2,299	1,569	730	658	449	209
Bladder	2,905	2,331	574	905	674	231
Brain & CNS	1,552	810	742	1,163	622	541
Thyroid	12,649	1,765	10,884	327	83	244
Hodgkin's disease	154	104	50	35	25	10
Non-Hodgkin's lymphoma	2,937	1,640	1,297	1,253	760	493
Multiple myeloma	772	400	372	521	270	251
Leukemia	2,289	1,292	997	1,438	794	644
Other & ill-defined	8,632	4,471	4,161	3,211	1,754	1,457

*Includes gallbladder and other/unspecified parts of biliary tract.
CNS, central nervous system.

mon cancer sites were the thyroid (CR 44.8, ASR 35.0), breast (CR 40.5, ASR 31.0), stomach (CR 36.2, ASR 26.3), colon & rectum (CR 30.4, ASR 22.2), lung (CR 19.0, ASR 13.2), and cervix uteri (CR 15.4, ASR 11.5), accounting for about 69% of all newly diagnosed cancers.

From the construction of a KNCI DB for 1999 onward to 2005, the completeness of the Korea cancer registry data has improved gradually. This might have contributed in part to the gradual overall increases in cancer incidence, especially among the elderly. Nonetheless, the increases in thyroid, colorectal and breast cancers in women and prostate cancer in men are notable.

Mortality

In 2005, 65,117 cancer deaths were reported in Korea, accounting for about 26.7% of all deaths (Table 3). The CRs of all sites combined were 168.5 and 98.8 per 100,000 for men and women, respectively, and the ASRs of all sites combined were 166.6 and 68.8 per 100,000 (Table 4). Cancers of the lung, stomach, liver and colon & rectum were the most common fatal cancers, which accounted for 64% of all cancer deaths.

In men, the five leading primary cancer sites for mortality were the lung (CR 41.4, ASR 41.7), liver (CR 33.5, ASR

31.1), stomach (CR 29.3, ASR 28.9), colon & rectum (CR 13.4, ASR 13.5), and pancreas (CR 7.6, ASR 7.6). In women, the most common cancer sites for mortality were the stomach (CR 15.6, ASR 10.5), lung (CR 15.0, ASR 10.0), colon

Table 3. Ten leading causes of death during 2005 in Korea

Rank	Cause of death	Number of deaths	Percent of all deaths	Age-standardized death rate*
	All causes	243,880	100.0	415.5
1	Cancer	65,117	26.7	109.1
2	Cerebrovascular disease	31,195	12.8	50.9
3	Heart disease	19,109	7.8	31.7
4	Intentional self harm (suicide)	12,011	4.9	20.2
5	Diabetes mellitus	11,776	4.8	19.4
6	Disease of liver	8,392	3.4	14.0
7	Transport accidents	7,935	3.3	14.2
8	Chronic lower respiratory diseases	7,549	3.1	12.2
9	Hypertensive diseases	4,520	1.9	7.5
10	Pneumonia	4,131	1.7	7.0
	All other & ill-defined causes	72,148	29.6	-

*Age-standardized to the WHO world standard population.
Source: Mortality Data, 2006, Korea National Statistical Office.

Table 2. Crude and age-standardized cancer incidence rates by sex during 2005 in Korea

Sites	Crude incidence rates per 100,000			Age-standardized incidence rates per 100,000*		
	Both sexes	Males	Females	Both sexes	Males	Females
All sites	292.9	317.8	268.0	240.8	303.5	201.4
Lip, oral cavity & pharynx	4.4	6.4	2.4	3.7	5.9	1.9
Esophagus	4.1	7.6	0.6	3.5	7.5	0.4
Stomach	53.0	69.7	36.2	43.4	65.5	26.3
Colon & rectum	36.2	42.0	30.4	29.8	39.6	22.2
Liver	30.6	46.1	15.0	25.4	42.0	11.1
Gallbladder [†]	8.6	8.6	8.5	7.0	8.6	5.9
Pancreas	7.6	8.4	6.8	6.2	8.2	4.7
Larynx	2.3	4.3	0.4	2.0	4.2	0.3
Lung	34.8	50.5	19.0	28.5	50.2	13.2
Breast	20.3	0.2	40.5	15.8	0.2	31.0
Cervix uteri	-	-	15.4	-	-	11.5
Corpus uteri	-	-	4.7	-	-	3.7
Ovary	-	-	6.4	-	-	5.1
Prostate	-	14.3	-	-	14.7	-
Testis	-	0.6	-	-	0.5	-
Kidney	4.7	6.4	3.0	4.0	5.9	2.4
Bladder	6.0	9.5	2.4	4.9	9.4	1.6
Brain & CNS	3.2	3.3	3.1	3.0	3.3	2.7
Thyroid	26.0	7.2	44.8	20.5	5.8	35.0
Hodgkin's disease	0.3	0.4	0.2	0.3	0.4	0.2
Non-Hodgkin's lymphoma	6.0	6.7	5.3	5.1	6.3	4.2
Multiple myeloma	1.6	1.6	1.5	1.3	1.6	1.1
Leukemia	4.7	5.3	4.1	4.6	5.4	4.0
Other & ill-defined	17.7	18.3	17.1	15.2	18.1	13.0

*Age-standardized to the WHO world standard population; [†]Includes gallbladder and other/unspecified parts of biliary tract. CNS, central nervous system.

Table 4. Crude and age-standardized cancer mortality rates by sex during 2005 in Korea

Sites	Crude mortality rates per 100,000			Age-standardized mortality rates per 100,000*		
	Both sexes	Males	Females	Both sexes	Males	Females
All sites	133.8	168.5	98.8	109.1	166.6	68.8
Lip, oral cavity & pharynx	1.7	2.7	0.8	1.4	2.5	0.6
Esophagus	2.9	5.4	0.5	2.4	5.3	0.3
Stomach	22.5	29.3	15.6	18.0	28.9	10.5
Colon & rectum	12.3	13.4	11.3	9.9	13.5	7.5
Liver	22.3	33.5	11.1	18.5	31.1	7.9
Gallbladder [†]	6.8	6.9	6.7	5.5	7.0	4.5
Pancreas	6.9	7.6	6.2	5.7	7.6	4.2
Larynx	1.3	2.3	0.3	1.0	2.4	0.2
Lung	28.2	41.4	15.0	22.9	41.7	10.0
Breast	3.3	0.1	6.5	2.6	0.1	4.9
Cervix uteri	-	-	4.4	-	-	3.1
Corpus uteri	-	-	0.6	-	-	0.5
Ovary	-	-	3.1	-	-	2.3
Prostate	-	3.7	-	-	4.3	-
Testis	-	0.0	-	-	0.0	-
Kidney	1.4	1.8	0.9	1.1	1.8	0.6
Bladder	1.9	2.8	1.0	1.5	3.0	0.6
Brain & CNS	2.4	2.5	2.2	2.1	2.4	1.8
Thyroid	0.7	0.3	1.0	0.5	0.3	0.7
Hodgkin's disease	0.1	0.1	0.0	0.1	0.1	0.0
Non-Hodgkin's lymphoma	2.6	3.1	2.0	2.1	3.0	1.5
Multiple myeloma	1.1	1.1	1.0	0.9	1.1	0.7
Leukemia	3.0	3.3	2.7	2.7	3.3	2.2
Other & ill-defined	6.6	7.2	6.0	5.5	7.3	4.3

*Age-standardized to the WHO world standard population; [†]Includes gallbladder and other/unspecified parts of biliary tract. CNS, central nervous system.

& rectum (CR 11.3, ASR 7.5), liver (CR 11.1, ASR 7.9), and gallbladder (CR 6.7, ASR 4.5).

Trends in cancer incidence

Tables 5.1-5.3 show the trends in cancer incidence for all sites combined and for selected cancer sites. The incidence rate for all sites combined increased by 2.5% annually from 1999 to 2005. The incidence rate for all sites combined increased by 1.2% annually in men and by 4.1% in women from 1999 to 2005.

The incidence rates have continued to increase for colorectal and thyroid cancer in both sexes, along with breast cancer in females and prostate cancer in males. Stomach and lung cancer incidence rates plateaued in men and women, while the incidences of liver cancer in both sexes and the cervix in women have decreased.

One notable aspect is the sharp increase (25.1% annually) in the incidence of female thyroid cancer. As diagnostic techniques for thyroid cancer have become more sensitive, such as with the advent of ultrasound and fine-needle aspiration, the detection of subclinical disease has become possible. Therefore, the increased incidence of thyroid cancer might reflect improved diagnostic techniques for previously undetected

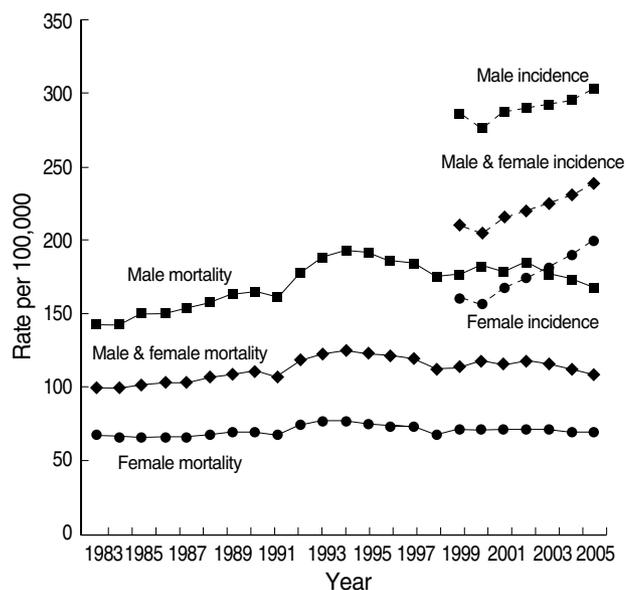


Fig. 1. Annual age-standardized cancer incidence and death rates for all sites by sex during 1983-2005 in Korea.

disease, rather than a true increase in the occurrence of thyroid cancer (11, 12).

Table 5-1. Trends in cancer incidence rates in both sexes during 1999-2005 in Korea

Sites	Years							APC*
	1999	2000	2001	2002	2003	2004	2005	
All sites	210.5	205.1	216.7	220.1	225.2	230.8	240.8	2.5 [†]
Lip, oral cavity & pharynx	3.6	4.4	3.6	3.7	3.7	3.7	3.7	-0.9
Esophagus	4.1	3.7	3.9	3.8	3.6	3.5	3.5	-2.1 [†]
Stomach	43.6	42.3	44.0	43.6	43.1	40.5	43.4	-0.4
Colon & rectum	20.4	21.0	22.9	24.7	26.4	27.9	29.8	6.8 [†]
Liver	27.9	26.7	27.3	26.5	25.7	25.4	25.4	-1.6 [†]
Gallbladder [†]	6.5	6.4	6.7	6.7	6.6	6.9	7.0	1.3 [†]
Pancreas	5.6	5.5	5.5	5.8	5.8	6.0	6.2	1.9 [†]
Larynx	2.3	2.2	2.4	2.2	2.1	1.9	2.0	-3.3 [†]
Lung	28.5	27.7	28.3	28.5	27.8	28.6	28.5	0.2
Breast	10.7	10.8	12.7	13.9	14.0	14.5	15.8	6.8 [†]
Kidney	3.0	2.9	3.3	3.4	3.5	3.7	4.0	5.1 [†]
Bladder	4.6	4.6	4.9	4.7	5.0	5.0	4.9	1.3
Brain & CNS	2.9	2.8	2.8	2.6	2.9	2.9	3.0	0.8
Thyroid	6.3	6.1	7.9	9.5	12.5	17.2	20.5	24.2 [†]
Hodgkin's disease	0.2	0.3	0.3	0.3	0.3	0.4	0.3	4.4
Non-Hodgkin's lymphoma	4.5	4.2	4.5	4.6	4.9	5.1	5.1	3.2 [†]
Multiple myeloma	1.0	1.0	1.1	1.1	1.1	1.2	1.3	4.2 [†]
Leukemia	4.7	4.3	4.7	4.8	4.7	4.7	4.6	0.7
Other & ill-defined	14.3	13.5	13.9	13.5	14.6	14.5	15.2	1.4

*annual percent change using age-standardized incidence based on the WHO world standard population; [†]Includes gallbladder and other/unspecified parts of biliary tract; [†]The APC is significantly different from zero ($P<0.05$).
CNS, central nervous system.

Table 5-2. Trends in cancer incidence rates in males during 1999-2005 in Korea

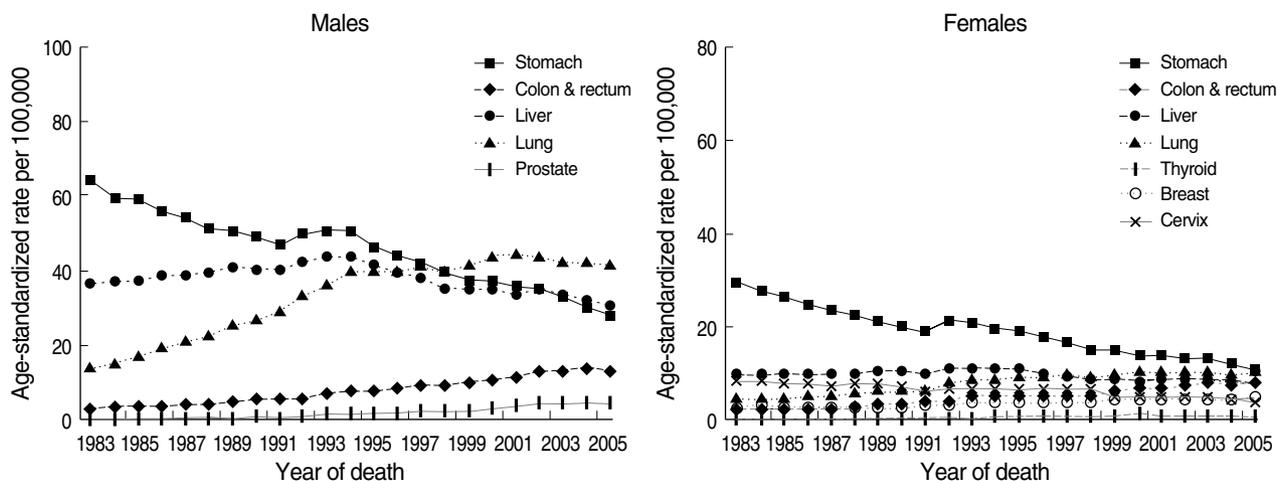
Sites	Years							APC*
	1999	2000	2001	2002	2003	2004	2005	
All sites	285.0	276.7	288.3	290.0	292.3	294.8	303.5	1.2*
Lip, oral cavity & pharynx	6.1	7.1	6.0	6.2	6.4	6.0	5.9	-1.3
Esophagus	8.8	8.0	8.3	8.2	7.7	7.6	7.5	-2.2 [†]
Stomach	66.2	65.0	67.2	66.6	65.7	61.5	65.5	-0.6
Colon & rectum	26.2	27.2	29.6	32.9	34.7	36.9	39.6	7.5 [†]
Liver	46.8	44.7	45.1	43.9	42.3	42.0	42.0	-1.8 [†]
Gallbladder [†]	8.1	7.8	8.2	8.1	7.8	8.4	8.6	1.0
Pancreas	7.8	7.6	7.6	7.9	7.7	8.0	8.2	0.9
Larynx	4.9	4.5	5.1	4.7	4.4	4.0	4.2	-3.0 [†]
Lung	51.4	49.8	51.1	51.0	49.9	50.6	50.2	-0.2
Breast	0.2	0.3	0.2	0.3	0.2	0.2	0.2	-0.7
Prostate	8.4	7.2	9.5	10.1	12.0	14.4	14.7	12.6 [†]
Testis	0.6	0.5	0.6	0.6	0.6	0.6	0.5	1.1
Kidney	4.5	4.4	4.9	5.0	5.1	5.5	5.9	4.6 [†]
Bladder	9.0	9.0	9.4	9.0	9.6	9.5	9.4	1.0
Brain & CNS	3.2	3.1	3.1	2.9	3.3	3.3	3.3	0.8
Thyroid	2.1	1.9	2.4	2.7	3.6	4.8	5.8	20.7 [†]
Hodgkin's disease	0.4	0.4	0.4	0.3	0.4	0.5	0.4	3.4
Non-Hodgkin's lymphoma	5.8	5.5	5.8	5.8	6.1	6.5	6.3	2.2 [†]
Multiple myeloma	1.2	1.3	1.4	1.4	1.4	1.4	1.6	3.8 [†]
Leukemia	5.5	5.0	5.4	5.8	5.4	5.6	5.4	0.7
Other & ill-defined	17.9	16.5	16.8	16.5	17.9	17.4	18.1	0.8

*annual percent change using age-standardized incidence based on the WHO world standard population; [†]Includes gallbladder and other/unspecified parts of biliary tract; [†]The APC is significantly different from zero ($P<0.05$).
CNS, central nervous system.

Table 5-3. Trends in cancer incidence rates in females during 1999-2005 in Korea

Sites	Years							APC*
	1999	2000	2001	2002	2003	2004	2005	
All sites	161.1	157.4	169.0	174.6	181.8	190.0	201.4	4.1 [†]
Lip, oral cavity & pharynx	1.6	2.4	1.7	1.7	1.6	1.8	1.9	-0.6
Esophagus	0.6	0.6	0.6	0.5	0.6	0.5	0.4	-3.9
Stomach	26.7	25.2	26.2	26.3	25.8	24.3	26.3	-0.5
Colon & rectum	16.4	16.4	17.9	18.8	20.2	21.0	22.2	5.5 [‡]
Liver	12.3	11.8	12.2	11.8	11.5	11.2	11.1	-1.7 [‡]
Gallbladder [†]	5.3	5.5	5.7	5.8	5.8	5.8	5.9	1.6 [‡]
Pancreas	4.0	4.0	4.0	4.2	4.4	4.5	4.7	3.0 [‡]
Larynx	0.4	0.3	0.3	0.3	0.3	0.3	0.3	-8.0 [‡]
Lung	12.4	12.5	12.3	12.6	12.3	13.0	13.2	0.9
Breast	20.9	20.9	24.7	27.2	27.4	28.5	31.0	7.2 [‡]
Cervix uteri	16.3	15.1	15.8	14.8	14.0	12.9	11.5	-5.9 [‡]
Corpus uteri	2.8	2.6	3.0	3.3	3.7	3.7	3.7	6.6 [‡]
Ovary	5.0	4.8	4.8	5.0	5.1	5.1	5.1	0.7
Kidney	1.7	1.8	1.9	2.0	2.1	2.2	2.4	5.4 [‡]
Bladder	1.6	1.6	1.7	1.7	1.8	1.7	1.6	0.7
Brain & CNS	2.6	2.5	2.5	2.4	2.5	2.6	2.7	0.8
Thyroid	10.4	10.1	13.2	16.2	21.5	29.5	35.0	25.1 [‡]
Hodgkin's disease	0.1	0.2	0.2	0.2	0.2	0.2	0.2	5.5
Non-Hodgkin's lymphoma	3.4	3.2	3.4	3.5	3.9	4.0	4.2	4.5 [‡]
Multiple myeloma	0.8	0.8	0.9	0.8	0.9	1.0	1.1	5.2 [‡]
Leukemia	3.9	3.8	4.1	4.0	4.1	4.0	4.0	0.6
Other & ill-defined	11.8	11.5	11.8	11.5	12.2	12.4	13.0	1.8 [‡]

*annual percent change using age-standardized incidence based on the WHO world standard population; [†]Includes gallbladder and other/unspecified parts of biliary tract; [‡]The APC is significantly different from zero ($P < 0.05$).
CNS, central nervous system.

**Fig. 2.** Annual age-standardized cancer mortality for selected cancers by sex during 1983-2005 in Korea.

Trends in cancer mortality

Figs. 1&2 show the trends in cancer deaths for all sites combined and for selected cancer sites. Age-standardized mortality rates have decreased for all sites combined in both sexes since 2002.

For lung cancer, the leading site for cancer deaths since 1999, mortality has decreased slightly for men since 2001,

but increased significantly in women. The age-standardized mortality rates of stomach and cervix uteri cancer have decreased continuously. Along with the significant increases in colorectal, prostate and female breast cancer incidence, the mortality rates of these cancers have also continued to increase.

Table 6. Five major sites of cancer incidence by age group and sex during 2005 in Korea

Rank	Age-specific incidence rate per 100,000				Rank	Age-specific incidence rate per 100,000			
	0-14 yr	15-34 yr	35-64 yr	65 yr and over		0-14 yr	15-34 yr	35-64 yr	65 yr and over
Males					Females				
1	Leukemia (4.1)	Stomach (3.9)	Stomach (92.3)	Lung (478.6)	1	Leukemia (3.6)	Thyroid (23.9)	Breast (82.1)	Stomach (165.8)
2	Brain & CNS (2.1)	Thyroid (3.5)	Liver (74.8)	Stomach (454.5)	2	Brain & CNS (1.8)	Breast (9.6)	Thyroid (81.6)	Colon & rectum (150.3)
3	Non-Hodgkin's lymphoma (1.4)	Leukemia (3.1)	Colon & rectum (55.5)	Colon & rectum (274.5)	3	Non-Hodgkin's lymphoma (0.8)	Stomach (4.8)	Stomach (42.3)	Lung (116.3)
4	Liver (0.5)	Non-Hodgkin's lymphoma (2.3)	Lung (43.8)	Liver (220.0)	4	Ovary (0.6)	Cervix uteri (4.1)	Colon & rectum (34.3)	Liver (74.2)
5	Kidney (0.4)	Colon & rectum (2.3)	Thyroid (12.8)	Prostate (157.0)	5	Kidney (0.4)	Ovary (2.8)	Cervix uteri (25.7)	Gallbladder* (54.6)

*Includes gallbladder and other/unspecified parts of biliary tract.
CNS, central nervous system.

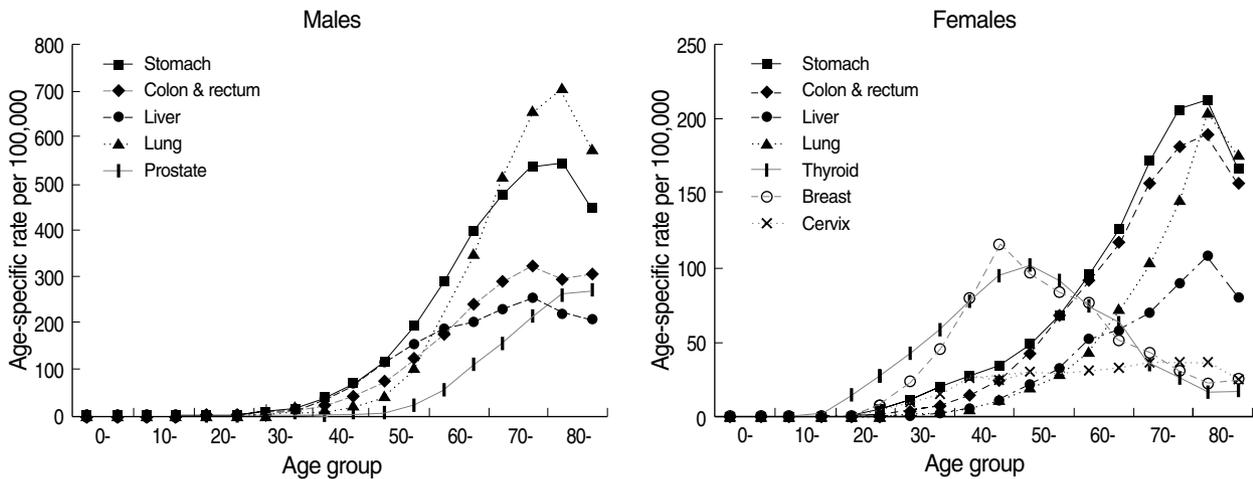


Fig. 3. Age-specific incidence rates of major cancers during 2005 in Korea.

Age-specific incidence rates for selected cancer sites

Table 6 presents the most common cancer sites by sex and age group. For ages 0-14 yr, leukemia was the most common form in both sexes. For males, stomach cancer was the most common in 15-64-yr-olds, while lung cancer was more frequent for those 65 and over. For females, the most common sites of cancer were the thyroid, breast and stomach for the 15-34-yr-old, 35-64-yr-old, and the 65 and over age groups, respectively. Fig. 3 shows the age-specific incidence rates of the selected cancers for men and women. The data show that the incidence of stomach, lung, liver and colorectal cancers increased gradually with age. In women, the age-specific incidence rates of breast and thyroid cancer has increased with age until the forties and decreased thereafter.

Survival rates

Table 7 shows the 5-yr relative survivals for three periods: 1993-1995, 1996-2000, and 2001-2005. Notable improvement has been made in the 5-yr relative survival rates for all sites combined. The survival of females appears to have a better prognosis than that of males. This is partly explained by the high frequency of female cancers (e.g., thyroid, breast and uterine cervix) known to have relatively good prognoses.

The 5-yr relative survival rates appeared to be higher for most major cancer sites in patients diagnosed during 2001-2005 compared to 1993-1995, except for cancers of the pancreas, brain and central nervous system. The greatest improvements were seen in leukemia, non-Hodgkin's lymphoma,

Table 7. Trends in the 5-yr relative survival rates (%) by year of diagnosis during 1993-2005 in Korea

Sites	Males				Females			
	1993-1995	1996-2000	2001-2005	Change*	1993-1995	1996-2000	2001-2005	Change*
All sites	31.7	35.3	43.7	12.0	53.4	55.3	62.4	9.0
Lip, oral cavity & pharynx	35.8	41.1	46.9	11.1	58.1	63.8	65.4	7.3
Esophagus	11.8	14.3	19.5	7.7	23.7	24.2	27.1	3.4
Stomach	43.0	46.9	57.0	14.0	42.6	46.0	55.1	12.5
Colon & rectum	55.3	59.0	66.7	11.4	54.2	56.8	62.4	8.2
Liver	9.9	12.9	18.8	8.9	13.6	14.2	19.0	5.4
Gallbladder [†]	16.6	20.3	23.0	6.4	18.0	19.1	21.7	3.7
Pancreas	8.8	7.3	8.0	-0.8	10.1	7.3	7.6	-2.5
Larynx	60.2	62.8	65.8	5.6	55.4	57.8	58.3	2.9
Lung	10.4	11.6	14.1	3.7	14.2	16.2	19.4	5.2
Breast	75.1	85.6	87.1	12.0	78.0	83.2	87.3	9.3
Cervix uteri	-	-	-	-	77.5	80.0	81.1	3.6
Corpus uteri	-	-	-	-	81.5	81.8	84.5	3.0
Ovary	-	-	-	-	58.7	58.9	62.1	3.4
Prostate	55.9	67.2	76.9	21.0	-	-	-	-
Testis	85.4	90.4	90.0	4.6	-	-	-	-
Kidney	60.8	64.4	71.3	10.5	64.5	69.7	74.4	9.9
Bladder	70.0	74.8	78.8	8.8	65.5	66.3	68.3	2.8
Brain & CNS	37.2	37.5	38.0	0.8	40.2	40.7	39.9	-0.3
Thyroid	87.2	89.5	95.7	8.5	95.4	95.9	98.5	3.1
Hodgkin's disease	67.6	68.1	73.3	5.7	68.6	77.4	76.2	7.6
Non-Hodgkin's lymphoma	45.3	48.9	56.0	10.7	48.7	53.5	60.8	12.1
Multiple myeloma	21.1	17.8	30.2	9.1	23.3	22.1	27.6	4.3
Leukemia	26.2	32.3	39.4	13.2	26.8	34.6	40.9	14.1
Other & ill-defined	37.4	42.4	51.1	13.7	47.4	50.0	57.7	10.3

*Change in the 5-yr relative survival between 1993-1995 and 2001-2005 as a percentage; [†]Includes gallbladder and other/unspecified parts of biliary tract. CNS, central nervous system.

and prostate, stomach, colorectal and breast cancers.

The improving survival rates could be attributable to early detection, as well as to improved treatments (13, 14), but this needs to be evaluated further. Lack of progress in early detection and treatment could explain the observed absence of improvement in the survival rate of pancreatic cancer (15).

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