Cancer in Kazakhstan: Present situation on Cancer

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Abstract

Cancer is the third leading cause of premature death in Kazakhstan. Every year more than thirty thousand Kazakhstani people are diagnosed with cancer. The present article was undertaken to provide base for the cancer control programs in Kazakhstan. The most common types of cancer are lung, skin, breast and stomach. These four cancers combined account for over 44% of new cases of cancer. Lung cancer is the most common cancer in men accounting for nearly a quarter of cancer cases in men. Breast cancer is by far the most common cancer in women accounting for 20%. Cancer remains mainly a disease of older Kazakhstanis. The largest proportion of cancer deaths for both men and women were from lung cancer mainly caused by smoking. Deaths from cancers of the lung, stomach, breast and esophagus together accounted for almost a half (46%) of all cancer deaths. With an estimated 186.7 new cases and 166.7 deaths in 2006, cancer remains an important public health problem in Kazakhstan. The incidence of lung cancer, and several other forms of cancer, could be reduced by improved tobacco control and healthy lifestyle.

Key Words: cancer, mortality, incidence, Kazakhstan

(Received February 1, 2010; Accepted November 9, 2010)
Materials and Methods

The most recent sources of cancer incidence and mortality data from representative national health database were used for this cancer statistics review. Additional data from WHO source was used where national incidence and mortality data were not available to show the trends for the last 14 years, as well as for tobacco use and alcohol consumption data.

Cancer incidence

The incidence of malignant neoplasm in 2006 in Kazakhstan – 186.7 per 100000 population, which is above the average level of other Central Asian Republics (CAR), 96.3 and below the average of the Commonwealth of the Independent States (CIS), 270.5 and the European Union (EU), 476.3. In the same year, an estimated 28573 new cases of cancer was diagnosed in Kazakhstan: 47.2% in males and 52.8% in females. The most common types of cancer are lung, skin, breast and stomach cancer. These four cancers combined account for over 44% of new cases of cancer.

Lung cancer is the most common cancer in men accounting for nearly a quarter (22.1%) of cancer cases in men (Figure 3). Stomach cancer is the second most common followed by skin cancer. Breast cancer is by far the most common cancer in women accounting for 20% (Figure 4). Skin cancer is the second most common cancer in women followed by uterus cancer.

Cancer remains mainly a disease of older Kazakhstans. For the period 1992–2006, incidence rates of all cancers increased gradually by age at diagnosis, beginning in middle age and increasing more rapidly after age 55, particularly in males. Rates at ages 40–54 years were higher in females than males, largely reflecting the impact of breast cancer at these ages.

For the period 1992–2006, the prevalence of cancer increased by approximately 0.7% per year. Incidence rates for all cancers in males peaked in 1992, 1998,
slightly declined in 1995, 1999, and have been relatively stable since (Figure 5). In contrast, incidence rates for females for all cancers combined have slowly increased over the last 14 years, reflecting large increases in breast cancer incidence. Breast cancer incidence rates in women have been increasing since 1990s up until present time. It peaked in 2004 with 39 new cases per 100,000 populations. Gradual decrease in lung cancer incidence has been observed from 1992 to 2006.

Cancer mortality

Cancer mortality is more equally distributed across Kazakhstan. The rates in Kazakhstan are close to the average of European countries. However, as in other CIS countries with high mortality from other causes than cancer, the proportion of cancer deaths comprise about 12% of total mortality in Kazakhstan, compared to a 28% average of European countries with very low child and adult mortality, and since 1990 the rate has been steadily decreasing. In 2006, 17608 Kazakhstani died from cancer, representing 11.5% of all deaths occurring in Kazakhstan during that year. The largest proportion of cancer deaths for both men and women were from lung cancer (17.6%).

Breast cancer accounted for 16.4% of all cancer deaths among women, while lung cancer accounted for 28.0% of all cancer deaths among men. Stomach cancer accounted for 13.5% of both all male and all female cancer deaths. The top four cancers combined (lung, stomach, breast and esophagus) accounted for more than 46% of all cancer deaths in 2006 for both men and women.

Figure 5 shows cancer mortality had been higher than cancer incidence from 1992 and 2000. Furthermore, cancer mortality reduced by a fourth (25%) for relatively brief period. We assume that this changes closely related with socioeconomic situation for that period in the country. During 1992–2000 Kazakhstan experienced severe crisis after collapse of the Soviet Union. Cut in healthcare expenditure caused shortage of physicians, reduction of primary health care centers especially in rural area, and as a result access to the healthcare facilities for people was poor. We suppose that these factors could strongly affect the increase on cancer mortality in that period. Later, from 2001–2006 the situation in the country was more stable and new health care reforms were implemented. Most possibly this could be the reason for the reduction of cancer mortality in a relatively short period.

The 20 most common causes of cancer death are shown in the Figure 6. Reflecting the incidence of cancer, the majority of deaths from cancer occur in older age.

The mortality rates for all cancers have declined among both men and women since the late 1992, from a high of 210.5 per 100,000 in 1992 to 166.7 per 100,000 populations in 2006.

Cancer Diagnostics and Treatment

Whilst primary prevention aims to reduce the incidence of cancer by tackling the major determinants of cancer, such as smoking, nutrition and physical activity, secondary prevention aims to reduce mortality by early detection of cancer through screening of the population at risk of developing the disease. Deaths from breast and cervix uterus cancers could be avoided if cancer-screening rates increased among women at risk. Breast and cervix uterus cancer early detection program have been taking place in Kazakhstan since 2008. According to this program every woman aged 35–60 once in a five year time has to be examined by mammography and Papanicolaou tests. For the time being there is no organized screening undertaken for early detection of other types of cancer.

Verification of cancer diagnosis for all cancer types accounted for 81.2% in 2006. The highest verification
rates were observed for uterus, mouth, skin and leukemia cancer types. The lowest verification rates were for lung, bone and articular cartilage, esophagus and bladder cancer types.

Usage of treatment methods varies according to type of cancer. The most common method used for colorectal, thyroid, bladder, skin and stomach cancer was surgical method. Combined method of treatment was mainly used for uterus, breast, connective and soft tissue cancer and skin melanomas. Radiation therapy as independent method was used for skin, cervix uterus, esophagus, oral cavity, gullet and larynx cancers. Medication therapy as a main method was used for leukemia, malignant lymphoma, lung, prostate, and stomach and bone cancer. Chemo radiation therapy was commonly used in oral cavity, gullet, larynx, bone and articular cartilage, as well as in lung, esophagus, cervix uterus and malignant lymphoma.

**Five-year survival rate**

Looking at all cancers combined the five-year relative survival rate has reached 45.8% in 2006. The highest five-year survival rate was for mouth, cervix uterus, bone and articular cartilage, corpus uterus, thyroid and skin cancers (Figure 7). The lowest five-year survival was in prostate, esophagus and lung cancers. In dynamics there was a tendency to increase, except mouth and corpus uterus cancer.

**Education and Training of cancer specialists**

In Kazakhstan physicians are trained for six years following a 1-year internship based on six major specialties (residency). After the internship, physicians can specialize in more than 80 specialties with a training duration of 2–4 years. The same medical education system applies for educating oncology specialists. Further education is conducted at the Postgraduate Medical Institute or at one of the medical research institutes. Physicians must do a short retraining course every five years and clinical lecturers every three years. This requirement has faltered, however, with budget cuts and the difficulties of taking leave from employment. There are considerable regional variations, with the highest concentration of health care workers in the major cities and shortages in rural areas. Despite some reform initiatives, the quality of training and retraining remains poor and salaries for health care workers are far below the national average. Current reforms envisage an overhaul of the training of health care professionals and the introduction of financing mechanisms that encourage health professionals to perform well10. According to the report of Kazakh Oncology Institute for 2006 there is a shortage of oncology specialists in National Cancer Institute and local cancer hospitals. For the year 2006 the number of oncologists and radiologists was 372 and 93, respectively, that was below requirement for the full provision of oncology services among Kazakhstani population11.

**Conclusion**

With an estimated 186.6 new cases and 166.7 deaths in 2006, cancer remains an important public health problem in Kazakhstan. Evidence-based public health measures exist to reduce the mortality of breast and cervix uterus cancer while the incidence of lung cancer, and several other forms of cancer, could be reduced by improved tobacco control and healthy lifestyle.

**Acknowledgment**

This work was supported, in part, by a Non-Profit Organization “Epidemiological & Clinical Research Information Network (ECRIN)”.

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