

МОНГОЛ УЛСЫН БОЛОВСРОЛ, СОЁЛ, ШИНЖЛЭХ УХААН, СПОРТЫН ЯАМ
АНАГААХЫН ШИНЖЛЭХ УХААНЫ ҮНДЭСНИЙ ИХ СУРГУУЛЬ

САНЖААЖАМЦЫН ЭРДЭНЭЧИМЭГ

**МОНГОЛ УЛСЫН ХҮҮХЭД ӨСВӨР ҮЕИЙН ХОРТ ХАВДРЫН
ӨВЧЛӨЛ НАС БАРАЛТЫН СУДАЛГАА**

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Нийгмийн эрүүл мэндийн ухааны магистрийн зэрэг горилсон нэг сэдэвт бүтээл

Улаанбаатар хот
2019 он

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ABSTRACT

Childhood cancer incidence and mortality of Mongolia; 2008-2017

Key word: childhood, cancer, incidence, mortality, rate

Background: According to the statistics of World Health Organization (WHO), Children's Cancer Association and International Cancer Research Center (IARC), an estimated 300,000 new cases of childhood cancer are registered annually, and about 215,000 cancers of them aged 0-14 years; about 85,000 cancers of them aged 15-19 years and 80,000 children die due to the cancer [1-3].

In recent years childhood cancer increased by 13%, over represented in low and middle income countries, which account for 4% of all diagnosed cancer, and less than 1% of all cancers diagnosed in high-income countries, according to the statistics of WHO [4].

In Mongolia the registration of childhood cancer is not sufficiently also don't use to the international childhood cancer classification and the lack of research served as the background of the our study.

Objective: The study was aimed to assess the childhood cancer mortality by age, sex and region, and define the structure of the childhood cancer by the international classification and estimate the perspective of the childhood cancer.

Material and methods: We assessed the incidence, mortality and perspectives of childhood cancer in Mongolia based on registered cancer cases which is registered in 2008-2017. The study was conducted using retrospective and descriptive design. The incidence rate was based on cancer notification form of secondary and tertiary level hospitals and the mortality rate was based on a death certificate and medical history. Information on mortality was clarified from the National Statistics Office. The incidence, mortality and age specific rate were performed using SPSS-22 and MS Excel software. Recent 10 year's trend and perspectives of the incidence and mortality were performed using ARIMA. The ANOVA analyzes was used to evaluate a mean, standard deviation and standard error was.

Results: The childhood cancer incidence rate was 70.8 ± 16.5 (CI 59.0-82.6) per 1 million children. The overall incidence rate of childhood cancer registered 85.0 (30%) in 0-4 years age group, 54.1 (19%) in 5-9 years age group, 66.2 (23%) in 10-14 years age group, 78.0 (28%) in 15-19 years age group. The morbidity rates were the highest in the 0-4 years age group. Cancer incidence rate per 1 million children was 72.9 ± 24.6 (CI 55.2-90.4; min 44.6 max 121.7) in boys and 68.6 ± 12.5 (CI 59.6-77.5; min 53.2 max 90.1) in girls in 2008-2017. The mean 10-year morbidity rate was 74.2% in boys and 68.9% in girls and there was no gender disparities (0.63). By region cancer incidence in 1 million children was 73.6 (20%) in Western region, 65.8 (18%) in Khangai region, 81.6 (23%) in Central region, 73.1 (20%) in Eastern region and 69.5 (19%) in Ulaanbaatar city. In 2008-2017 the mean childhood cancer rate was 73.8 ± 15.4 (CI 62.7-84.9) in Western region, 65.6 ± 32.0 (CI 42.7-88.5) in Khangai region, 80.9 ± 24.5 (CI 63.4-98.5) in Central region, 73.0 ± 38.9 (CI 45.2-100.8) in Eastern region and 68.2 ± 15.6 (CI 57.0-79.3) in Ulaanbaatar city. There wasn't a statistically significant difference between region rates ($P=0.70$). The childhood cancer mean mortality rate was 32.1 ± 4.3 (CI 29.0-35.3) in 1 million children. The mortality rate by age was 35.7(28%) in 0-4 years age group, 27.0 (21%) in 5-9 years age group, 27.4(21%) in 10-14 years age group, 37.8(30%) in 15-19 years age group. The highest mortality rate was in 15-19 aged group ($P=0.54$). By region cancer mortality was 35.9 ± 11.9 (CI 27.3-44.4; min 18.2; max 59.6) in Western region, 30.7 ± 13.1 (CI 21.3-40.1; min 18.2; max 59.6) in Khangai region, 39.3 ± 11.6 (CI 30.9-47.6; min 23.9; max 61.2) in Central region, 29.5 ± 19.4 (CI 15.6-43.4; min 0.0; max 66.6) in Eastern region and 28.8 ± 6.5 (CI 24.1-33.4; min 20.7; max 38.8) in Ulaanbaatar city. There was a statistically significant difference between region rates ($P=0.30$).

According to the estimated childhood cancer rates was 85.0 in 2018, 88.0 in 2019, 92.0 in 2020, 95.0 in 2021 and 99.0 in 2022 and average confidence interval was CI56.9-129.9 in 2018-2022. The overall incidence of childhood cancer is expected to increase by 3.0.

Conclusion: The average childhood cancer incidence rate per 1 million children was 70.8 ± 16.5 (CI 59.0-82.6) in 2008-2017. The incidence rate is likely to increase over the next 10 years ($P=0.01$). The incidence rate was the highest (85.0 per 1 million children) in the 0-4 years age group ($P=0.03$), there was no gender disparities (0.63). The highest incidence rate was in central region but there wasn't a statistically significant difference between region ($P=0.70$).

The childhood cancer mean mortality rate was 32.1 ± 4.3 (CI 29.0-35.3) per 1 million children. The highest morbidity rate was in 15-19 years age group and in Central region. But there wasn't a statistically significant difference between region and age group

By international childhood cancer classification-3 the most common childhood cancers in Mongolia are: Leukemias, myeloproliferative disease, and myelodysplastic diseases, CNS and miscellaneous intracranial and intraspinal neoplasms, Malignant bone tumors, Lymphomas and reticuloendothelial neoplasms, Germ cell tumors, trophoblastic tumors, and neoplasms of gonads. But by international classification of disease¹⁰ the most common childhood cancers in Mongolia are: 1st leukemia, 2nd central nervous system cancer, 3rd joint bone cancer, 4th lymphoma, 5th soft tissue cancer.

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