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Seasonal and climatic variations in mortality in ischemic heart disease

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Seasonal and climatic variations in mortality in IHD

■ Background

- There is an increase in the incidence of IHD in the period 2001-2018 in the Kazakhstan and Nur-Sultan, rising from 321.5 and 201.5 (2001) to 529.0 and 377.0 (2018) per 100,000 population, respectively.
- However, the mortality from IHD decreased in Kazakhstan from 157.4 (2009) to 62.3 (2018) and in Nur-Sultan from 124.5 to 51.4.

■ Aim

- Assessment of the influence of seasonal climatic and meteorological factors (CMF) on the mortality of patients with IHD in Nur-Sultan.

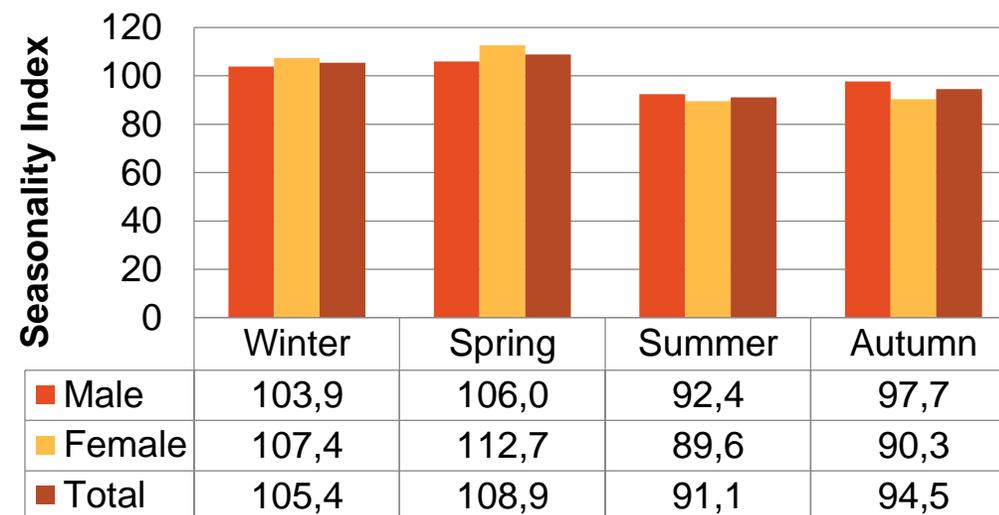
■ Methods

- The daily mortality of the population of Nur-Sultan for 2009-2018 from IHD in comparison with the daily CMF was grouped by days, months, seasons, analysed by gender and age groups: young (18-44 years old), middle-aged (45-59 years old), young-old (60-74 years old) and the aged (>75).

Seasonality Index calculated by seasons for mortality from IHD in Nur-Sultan for 2009-2018.

- The increase in mortality in the spring-winter period is confirmed by an increase in the seasonality index (SI).
- SI value more than 100% considered that seasonal factors intensified in this month (season).
- SI was above 100% from January to May (102.9–124.7), more pronounced in females. The IS mortality for winter was 105.4%, spring 108.9%, autumn 94.5%, and summer 91.2%.

$$SI = \frac{\text{mortality in a given month (season)}}{\text{average for all years}}$$



In conclusion, the noted seasonal and age and gender characteristics of mortality should be taken into account in treatment and prevention in patients with ischemic heart disease.

Practical application

Electronic system for prevention of CVD complications

As a result of the obtained predictive models for the prevention of CVD complications, a convenient Internet service for patients was developed “**Semaphore for the prevention of complications of major cardiovascular diseases, taking into account the climatic and environmental factors of the region**”.

