Fifteen-year mortality trends due to cardiovascular diseases in Poland using standard expected years of life lost, 2000–2014

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Abstract

Background: Measures presenting the number of years of lost life point out social and economic aspects of premature mortality.

Aim: The aim of the study was to determine trends and pace of changes in years of life lost, in inhabitants of Poland, in 2000–2014, due to cardiovascular diseases (CVD).

Methods: The study material was a database including 2,587,141 death certificates of Polish inhabitants who died of CVD in 2000–2014. We applied the standard expected years of life lost (SEYLL) indicators per living person ($SEYLL_p$) and per death ($SEYLL_d$) to calculate life years lost. We also estimated annual percentage changes (APC) and average annual percentage changes (AAPC) in the SEYLL indicators.

Results: In 2000 the SEYLLp index due to CVD was 860.3 years per 10,000 males and 586.9 years per 10,000 females. In 2000–2004 the indices were decreasing and the average annual rate was –0.8% in the male group and –1.2% in the female group. Eventually, in 2014 its values were 721.4 years per 10,000 males and 475.6 years per 10,000 females. The respondents were losing years of life due to ischaemic heart disease (IHD) most rapidly (AAPC = –3.3% in the male group and –3.2% in the female group) and due to cerebrovascular diseases (AAPC = –2.5% in the male group and AAPC = –3.3% in the female group). On the other hand, there was an increase in the number of years of life lost due to heart failure (HF) (AAPC = 5.7% in the male group and AAPC = 4.4% in the female group). In 2014 SEYLLp due to IHD were 207.3 per 10,000 males and 99.1 per 10,000 females, due to cerebrovascular diseases — 124.3 and 102.2, and due to HF — 155.3 and 104.9. Each male who died of CVD lost on average 19.1 years in the year 2000 and 17.0 years in the year 2014 (AAPC = –0.5%). Regarding women, SEYLLd values were 12.6 years in 2000 and 10.4 years in 2014 (AAPC = –1.4%). A decrease in the SEYLLd value was observed in all analysed causes of mortality, in both males and females.

Conclusions: Among CVDs, IHD and cerebrovascular diseases contribute to the highest number of years of life lost in inhabitants of Poland. The constant decline in the average number of years of life lost by each person who died of CVD might result from implementation of more effective prophylaxis and more effective treatment, which extend lifespan.

Key words: years of life lost, cardiovascular diseases, premature mortality, trends, Poland

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INTRODUCTION

Mortality statistics are the most reliable indirect source of information on the health of a population. The register of deaths and their causes, held in the form, which is in compliance with World Health Organisation (WHO) standards, has existed in Poland since 1959. The data gathered in the register was obtained from death certificates. The register of death certificates, unlike the register of diseases, is almost complete.

An analysis of particular diseases that cause mortality in most developed countries, conducted with the use of the aforementioned mortality indices, indicates that it is cardiovascular diseases (CVD) which contribute to the highest death rate [1]. Since these diseases contribute to death mostly in elderly people, the social and economic implications are less severe than for causes that are responsible for death in younger people. Hence, the authors of studies on international epi-

demiology increasingly use measures that express premature mortality in units of lost time [2–6]. In 2014, deaths due to CVD made up 40.3% of the total number of male deaths and 50.3% of the total number of female deaths [7]. Lost years of life due to CVD constituted, respectively, 31.9% and 35.6% of the total number of lost years of life in all inhabitants of Poland [8]. It should be pointed out that ischaemic heart disease (IHD) and cerebrovascular diseases, due to their high incidence, contributed to the highest number of lost years of life in all Polish inhabitants. However, considering the average number of years of life lost by one male, due to a particular cause, heart disease and cerebrovascular diseases took only the 11th and 13th positions, respectively; with regard to the average number of years of life lost by one female, these two diseases took only the 16th and 17th positions, respectively [8].

Despite many advances in prophylaxis and treatment of CVD, prognoses reveal that these diseases will still be the main cause of mortality in Polish people for many years ahead. However, the improvement will regard extension of lifespan, expressed by measures of years of life lost.

It should also be emphasised that years of lost life, calculated according to the methodology used in this study (as the standard expected years of life lost [SEYLL] index), are one of two components of the synthetic of disability-adjusted life years (DALY) index. DALY refers to a number of years of life lost due to premature mortality and years of life lived with partial disability, and one DALY corresponds to one lost year of healthy life. The WHO estimates that about 26% of DALY is caused by CVD, which corresponds to 106.5 DALY per 1000 Polish males and 74.2 DALY per 1000 Polish females. The values are more than two-fold higher in Poland in comparison to the ones observed in Ireland and France, and with regards to males, also higher than in Holland, Spain, or Denmark [9].

The aim of the study was to determine trends and pace of changes in years of life lost, in inhabitants of Poland, in 2000–2014, due to CVD, particularly including IHD, cerebrovascular diseases, diseases of arteries, arterioles and capillaries, and heart failure (HF).

METHODS

The study material includes a database that contains information gathered from 5,601,568 death certificates of inhabitants of Poland, who died between 2000 and 2014, provided by the Department of Information of the Polish Central Statistical Office. CVDs were the cause of 2,587,141 of these deaths (46.2%).

Years of life lost were counted and analysed by the method described by Christopher Murray and Alan Lopez in global burden of disease (GBD) [10]. The SEYLL index is calculated from the expected remaining years, as specified by a normative survivorship that is derived from model life tables for the referential (standard) population.

There are a few methods of calculating the number of lost years of life, and the main difference between them is the reference point, i.e. the mortality level which is considered "ideal". In the GBD 2010 study, WHO experts developed a new reference standard life table by identifying the lowest observed death rate for any age-group in countries with more than five million in population, to avoid chance fluctuations in death [11].

In this study the SEYLL index was calculated according to the following formula:

$$SEYLL = \sum_{x=0}^{l} d_x \, e_x^*$$

where: e_x^* — the number of expected years of life for each age, based on GBD 2010 life table; d_x — the number of deaths in age x; x — the age at which the person died; l — the last year of age to which the population lives.

The authors also calculated the $SEYLL_p$ (per living person) index, where the absolute SEYLL number was compared with the size of the Polish population in particular years, and the $SEYLL_d$ (per death) index, which relates absolute SEYLL numbers to the number of subjects who died due to the analysed cause [12].

Death causes are coded according to the International Statistical Classification of Diseases and Health-Related Problems — Tenth Revision (ICD-10). The authors of the study analysed diseases of the circulatory system in total (I00-I99), including IHD (I20-I25), HF (I50), cerebrovascular diseases (I60-I69), and diseases of arteries, arterioles, and capillaries (I70-I79).

The analysis of time trends was carried out with Joinpoint models and Joinpoint Regression Programme (version 4.0.3 April 2013; Statistical Research and Applications Branch, National Cancer Institute). This method is an advanced version of linear regression, where the time trend is expressed with a broken line, which is a sequence of segments joined in Joinpoint. In these points, the change of the value is statistically significant (p < 0.05). The minimum number of data points between two consecutive Joinpoints was four. We have also calculated the annual percentage change (APC) for each segment of broken lines and average annual percentage change (AAPC) for a full range of analysed years with corresponding 95% confidence intervals (CI).

RESULTS

In 2000–2014 the number of standard expected years of life lost (SEYLL) due to CVD in both sexes was gradually decreasing. In 2000, in the male group, the SEYLL index was 1,594,714 years, whereas in 2014 it was 1,343,307 years. The value of the $SEYLL_p$ index per 10,000 males decreased from 860.3 in 2000 to 721.4 in 2014. APC was –0.8% (p < 0.05) (Fig. 1). With regard to the female group, the absolute number of lost years of life decreased from 1,157,213 in 2000 to
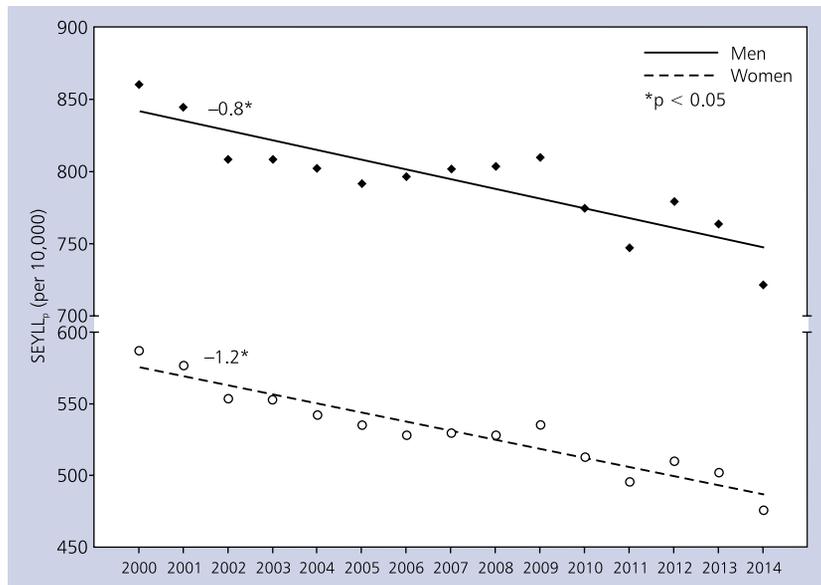
Figure 1. Trends for life years lost due to cardiovascular disease for both genders in Poland, 2000–2014

Table 1. Standard expected years of life lost due to cardiovascular diseases in Poland, 2000–2014

Causes of death	$SEYLL_p$ (per 10,000)		AAPC	95% CI		$SEYLL_d$		AAPC	95% CI	
	2000	**2014**				**2000**	**2014**			
Men										
Cardiovascular diseases overall	860.3	721.4	–0.8*	–1.1	–0.6	19.1	17.0	–0.5*	–0.7	–0.4
Ischaemic heart diseases	352.0	207.3	–3.3*	–3.6	–2.9	21.1	18.3	–1.0*	–1.2	–0.9
Heart failure	76.8	155.3	5.7*	3.7	7.9	17.4	16.6	–0.3*	–0.5	–0.2
Cerebrovascular diseases	180.4	124.3	–2.5*	–2.9	–2.1	18.7	17.3	–0.5*	–0.7	–0.4
Diseases of arteries, arterioles, and capillaries	93.2	83.1	–0.5	–3.4	2.4	13.5	11.0	–1.5*	–1.9	–1.1
Women										
Cardiovascular diseases overall	586.9	475.6	–1.2*	–1.4	–0.9	12.6	10.4	–1.4*	–1.4	–1.3
Ischaemic heart diseases	168.8	99.1	–3.2*	–3.6	–2.8	13.5	11.3	–1.2*	–1.6	–0.9
Heart failure	61.4	104.9	4.4*	2.4	6.5	11.6	10.3	–0.8*	–1.0	–0.7
Cerebrovascular diseases	166.0	102.2	–3.3*	–3.6	–3.1	13.9	11.5	–1.3*	–1.4	–1.2
Diseases of arteries, arterioles, and capillaries	91.9	92.3	–0.4	–1.3	0.5	9.2	7.7	–1.3*	–1.5	–1.1

*p < 0.05; $SEYLL_p$ — standard expected years of life lost per living persons; $SEYLL_d$ — standard expected years of life lost per deaths; AAPC — average annual percentage change; CI — confidence interval

944,489 in 2014. The $SEYLL_p$ index values per 10,000 females were 586.9 in 2000 and 475.6 in 2014. The APC was higher than in the male group, at –1.2% (p < 0.05).

A more detailed analysis of causes of mortality implies that in males IHD contributed to the highest number of lost years of life. In 2000, the $SEYLL_p$ index due to this cause of death was 352.0, whereas in 2014 it was 207.3 per 10,000 males (Table 1). The authors also observed the most rapid decline of the $SEYLL_p$ index in this group. The pace of this decrease

in 2000–2014 was –3.3% (p < 0.05). In 2000 and 2014, the $SEYLL_p$ index due to cerebrovascular diseases in males was 180.4 and 124.3, respectively. The index was decreasing in 2000–2008 at an annual pace of –1.4% (p < 0.05). Since 2008 the index has been decreasing more rapidly, i.e. –3.9% annually (p < 0.05) (Fig. 2). AAPC of the $SEYLL_p$ index due to cerebrovascular diseases in 2000–2014 was –2.5% (p < 0.05). In the group of males who died of diseases of arteries, arterioles, and capillaries the pace and trend changed twice but
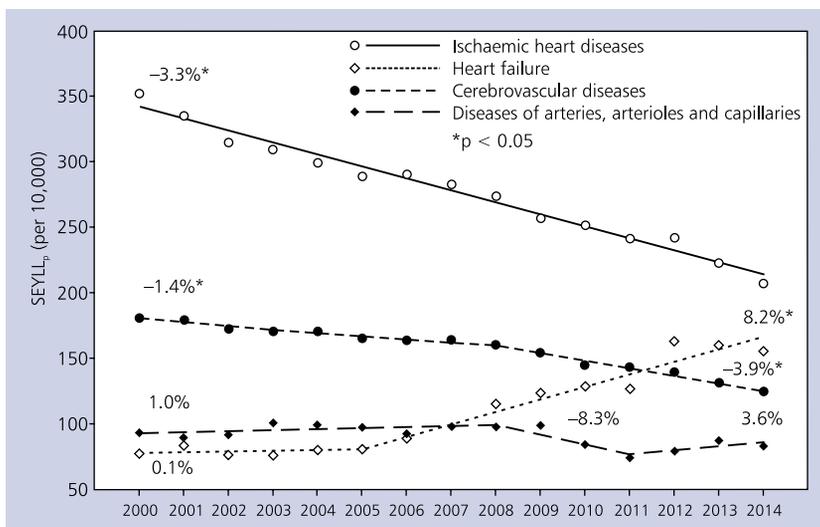
Figure 2. Trends for life years lost due to cardiovascular disease in men for different causes of death in Poland, 2000–2014
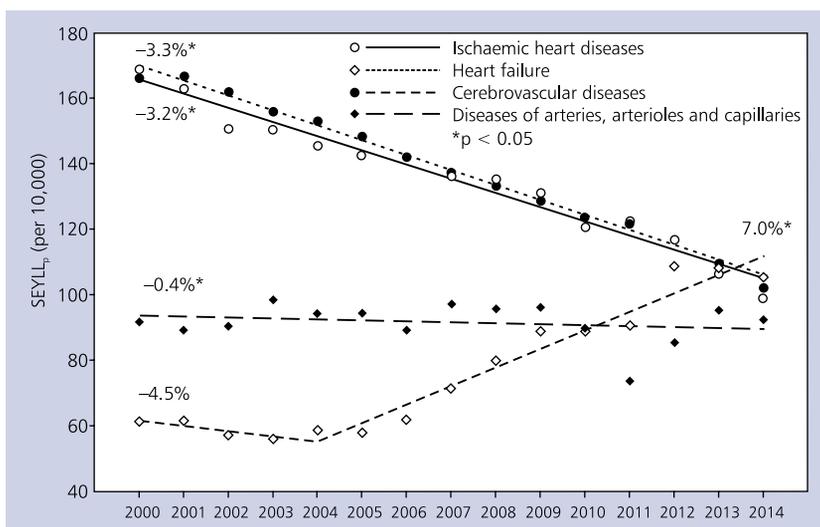

Figure 3. Trends for life years lost due to cardiovascular disease in women for different causes of death in Poland, 2000–2014

APC values were not statistically significant. The $SEYLL_p$ index dropped from 93.2 in 2000 to 83.1 in 2014, whereas AAPC in the whole analysed period was –0.5 (p > 0.05). In the fourth group of causes of mortality, i.e. deaths caused by HF, the authors observed negative trends in males. $SEYLL_p$ values were elevated between 2000 and 2005 (APC = 0.1%); however, the increase was slight and statistically insignificant. In 2005, the indices started growing at an annual pace of 8.2% (p < 0.05). AAPC in 2000–2014 was 5.7% (p < 0.05). In 2014, the $SEYLL_p$ index due to HF was 155.3 per 10,000 males. Heart failure was the second (after IHD) most important cause of mortality among CVDs, which contributed to the highest number of years of lost life.

In the female group, the highest values of the $SEYLL_p$ index, which were accompanied by a rapid decrease in the pace, concerned cerebrovascular diseases and IHD. The $SEYLL_p$ index due to cerebrovascular diseases dropped from 166.0 in 2000 to 102.2 in 2014, and the APC was –3.3% (p < 0.05). Regarding IHD, $SEYLL_p$ values were 168.8 in 2000 and 99.1 in 2014, per 10,000 females. In 2000–2014, APC was –3.2% (p < 0.05). The authors observed a slight and insignificant decrease in the $SEYLL_p$ values due to diseases of arteries, arterioles, and capillaries (APC = –0.4, p > 0.05). Similarly to the male group, also in females, HF contributed to the most negative trends in the number of years of life lost. Between 2000 and 2004 $SEYLL_p$ was decreasing at –4.5% annually (p > 0.05), but from 2004 it was growing at an annual pace of 7.0% (p < 0.05) (Fig. 3). In 2000–2014 AAPC was 4.4% (p < 0.05). In 2014 $SEYLL_p$ values due to HF were

104.9 per 10,000 females, which indicates that the disease was the cause of the greatest number of years of life lost among CVD.

The SEYLL$_d$ index (the number of years of life lost by one person who died) due to CVD decreased. Each male who died of these diseases in 2000 and 2014 lost on average 19.1 and 17.0 years of life, respectively. In females, SEYLL$_d$ values dropped from 12.6 in 2000 to 10.4 in 2014. An analysis of SEYLL$_d$ index values shows that IHD contributed to the greatest number of years of life lost per death in males. In 2000, each man who died of a disease from the above group lost on average 21.1 years of life. In the analysed 15-year period the SEYLL$_d$ index was decreasing at an annual pace of –1.0% ($p < 0.05$), and in 2014 it was 18.3 years. Regarding females, the highest SEYLL$_d$ values were observed for cerebrovascular diseases. Each woman who died of a disease from the above group lost on average 13.5 years of life in 2000 and 11.3 years of life in 2014 (AAPC = –1.2%, $p < 0.05$). A statistically significant SEYLL$_d$ decrease pace was observed for all analysed causes of mortality both in males and females (Table 1).

DISCUSSION

Until 1991, mortality due to CVD had been constantly increasing in Poland. Since 1991, the number of deaths has been constantly decreasing. It is supposed that the longer lifespan, observed after 1991 in 51% of males and in 61% of females, results from decreased mortality due to CVD [13].

The results of the authors' own study confirm that the number of years of life lost due to the above group of causes is also gradually decreasing. If the pace observed in the first 15 years of the 21st century remains the same for another 15 years, the number of years of life lost due to CVD would decrease in comparison to 2014 by 14% in the male group and 18% in the female group. However, considering the prognoses of the Central Statistical Office, regarding changes in the age of the ageing Polish population, where the percentage of people aged 65 or older is constantly increasing (15.3% in 2014 vs. 23.3% in 2030) [14], and the fact that CVDs are a predominant cause of mortality in this age group, we can suppose that the pace of years of life lost due to CVD will decline.

The declined mortality and the decreased number of years of life lost do not equally regard all groups from this class of diseases. A decreased number of deaths from mortality due to IHD, including acute myocardial infarction, mostly contributed to a decrease in mortality due to CVD [15, 16]. Similarly to other European countries, a further decrease is expected in Poland, too [17]. The authors revealed in their study that mostly IHD contributed to the highest number of years of life lost. The decrease in this cause group was four-fold higher in the male group and almost three-fold higher in the female group than the overall pace of the decrease due to CVD. If the pace observed in 2000–2014 remained the same

for another 15 years, the number of years of life lost in Polish inhabitants, caused by CVD, would decrease by 60% in comparison to 2014. While prognosticating a further decline, we should bear in mind data from the Central Statistical Office, regarding the ageing population, and we should not be too optimistic. Estimates made on the basis of results of the AMI-PL (Acute Myocardial Infarction) project imply that if myocardial risk remains the same, in 2030 the number of myocardial infarcts will increase by 39% in the male group and 42% in the female group, in comparison to the number observed between 2009 and 2012, and this increase will be caused exclusively by the ageing of the population [18].

Of CVDs, cerebrovascular diseases constituted the second most important group of diseases that contributed to the greatest number of years of life lost and which rapidly decreased. Stroke is the most frequently diagnosed disease that belongs to the group of cerebrovascular diseases. Cerebral strokes occur in all age groups and they often have irreversible results. Therefore, they are frequent causes of disability in the population above the age of 45. In Poland, cerebral stroke affects about 80,000 people each year. Of that number, 24,000 die within a year and 32,000 become permanently disabled [19]. Thus, prognoses should not be too optimistic because it might be implied by the decrease in the number of lost years, observed so far due to confirmed prognoses regarding ageing of the population and due to the fact that a person aged 55 years or older demonstrates an increased risk of stroke, which increases twice in each decade of life.

A relative stability was observed in 2000–2014, and it regarded the number of lost years of life due to diseases of arteries, arterioles, and capillaries. Atherosclerosis is the most common cause of mortality in this class of diseases. Our own calculations show that it is responsible for 93% of all deaths in the I70-I79 category. Since 98% of atherosclerosis-related deaths occur in people aged 65 years and above, we can expect that the phenomenon of the ageing population will contribute to an increase in the number of deaths and lost years of life.

A rapidly growing number of lost years of life due to HF seems to be the most negative trend. This observation confirms the thesis that there is a strong relationship between mortality caused by IHD and HF. Heart failure is a final stage of cardiac insufficiency, which occurs in the course of various diseases. Advances in treatment of acute coronary syndrome have considerably improved prognoses but, foremost, have significantly reduced mortality due to acute myocardial infarction. Many patients survive myocardial infarct, but due to damage to their heart they gradually develop cardiac insufficiency. Improved diagnostics and treatment of CVD, mainly IHD and arterial hypertension, lead to increased morbidity of cardiac failure [20, 21]. Thus, HF is becoming a more and more serious diagnostic and therapeutic problem and is a challenge for modern cardiology. Unfortunately, the

increase in the number of deaths due to causes coded as HF is also a result of errors made by doctors coding the cause of death. It is important to be careful while interpreting these data. The authors discuss this issue more precisely in 'Limitations of the study'.

Huge inequalities in cardiovascular-related mortality and the number of lost years of life due to CVD, different for sex, education, and living place, pose another problem. In 2011 the standardised death rate (SDR) in the male group was 415.3 per 100,000 and was 1.7 times higher than that in the female group (SDR = 244.8). Moreover, the decline in the male group between 2001 and 2011 was 26%, and it was lower in the female group, which demonstrated a 29% decrease. Thus, it can be concluded that disproportions caused by cardiovascular-related mortality between the two sexes are increasing [1]. The authors confirmed in their own study that the negative inequalities observed in males, concerning higher rates and a slower pace of their decrease, also regard the number of years of lost life.

Even greater differences are connected with education [22]. Between 2002 and 2011 SDR in people with secondary and higher education decreased. In the male group with elementary education it remained the same, and the female group it slightly increased. In 2011 SDR due to CVD in the male group with elementary education was 4.3-times higher than in university educated patients. In females the rate was even greater, i.e. 5.6-times higher [23].

Huge discrepancies are also observed in the number of lost years of life in inhabitants of various regions in Poland. Inhabitants of the Lodz Region lost the highest number of years due to CVD in 2013. The value was 1.3-times higher than in the Subcarpathian Region, which occupies the top position with regards to the number of years lost due to CVD [24].

Limitations of the study

The dataset provided by the Central Statistical Office in Poland for the study purposes contains three-character codes of cause of death in accordance with ICD-10. Hence the analysis of the K55.1 category, which comprises, among others, abdominal angina and atherosclerosis of mesenteric artery, had to be omitted.

Crude years of life lost indicators were used in the analysis because they present the actual scale of the phenomenon. The aging of the Polish population makes the number of deaths increase, but simultaneously, deaths at later age contribute to fewer life years lost.

The quality of the analyses, conducted with the use of mortality statistical data, depends on complete and reliable information included in death certificates, but mainly on proper and precise presentation of causes of deaths. In Poland 100% of deaths bear complete information. However, the quality of registering causes of death is not really high. Statistical data imply that in 2012 doctors misinterpreted the causes of 28% of deaths [25]. The percentage of deaths due to reasons registered with garbage codes is high. This fact results from including too much information on diseases of the cardiovascular system. The number of garbage codes regarding CVD has been increasing for many years, and now it constitutes half of the statements on deaths due to CVD and almost three-quarters of all deaths assigned as garbage codes, which makes up almost 22% of the overall number of deaths in Poland [25]. The two dominant garbage codes from the group of CVDs used by doctors are HF (46% of all garbage codes due to CVD in 2013) and generalised and unspecified atherosclerosis (41%).

It was also observed that there are pronounced regional differences in coding of causes of death due to CVD. The death rate from myocardial infarction in Katowice was nearly three times higher than those in Wroclaw and Krakow. Mortality rates from pulmonary heart disease and other heart diseases in Warsaw, Lodz, Bydgoszcz, and Szczecin were in the range of 12–19/100,000, while in the other cities it was lower than 1/100,000 residents. The death rates from atherosclerosis in Wroclaw and Krakow were several (6–9) times higher than in Bialystok, Katowice, Warsaw, and Szczecin [26, 27]. Due to the described reasons, it is recommended to be cautious when interpreting trends of lost life years due to HF and diseases of arteries, arterioles, and capillaries. However, in the authors' opinion, these two very big groups of diseases should not be omitted in analyses becsause, for example, a decline in mortality and correlated number of lost life years caused by ischaemic HF is precisely related to the increase of the same measures due to HF. The problem with coding of causes of death and a need to improve this process is worth highlighting once again.

Mortality statistics may seem not to be fully reliable. However, due to the fact they are complete, they still make up a very important source of information on the health of a population.

CONCLUSIONS

In the period from 2000 to 2014 IHD and cerebrovascular diseases most strongly contributed to the decline in the number of life years lost due to CVD. From 2005 we observed a growing proportion of deaths coded as deaths due to HF.

The authors observed a gradual decrease in the average number of lost years of life by each person who died of CVD and in each of the analysed class of causes, which might imply improved prophylaxis and more effective treatment, considerably expanding lifespan.

Conflict of interest: *none declared*

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Piętnastoletnie trendy umieralności z powodu chorób układu sercowo-naczyniowego przy użyciu współczynników utraconych standardowych oczekiwanych lat życia w Polsce w latach 2000–2014

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Streszczenie

Wstęp: Ocena udziału poszczególnych chorób będących przyczynami zgonów w krajach wysoko rozwiniętych przy użyciu współczynników umieralności wskazuje na największy udział chorób układu sercowo-naczyniowego (CVD). Ponieważ jednak ta klasa chorób jest w dużej części odpowiedzialna za zgony osób w wieku starszym, skutki społeczne i ekonomiczne są mniejsze niż w przypadku tych przyczyn, które są odpowiedzialne za zgony osób młodszych. Użycie współczynników oceniających przedwczesną umieralność w jednostkach utraconego czasu życia umożliwia uwzględnienie tych różnic.

Cel: Celem badania jest określenie kierunku i tempa zmian w utraconych latach życia mieszkańców Polski w latach 2000– –2014 z powodu CVD, w tym w szczególności choroby niedokrwiennej serca (IHD), chorób naczyń mózgowych, chorób tętnic, tętniczek i naczyń włosowatych oraz niewydolności serca (HF).

Metody: Materiał badawczy stanowiła baza danych utworzona na podstawie 2,587,141 kart zgonów z powodu CVD mieszkańców Polski w latach 2000–2014. Do obliczenia utraconych lat życia zastosowano wskaźniki $SEYLL_p$ (*standard expected years of life lost per living person*) oraz $SEYLL_d$ (*standard expected years of life lost per death*). Analizę trendów przeprowadzono za pomocą modeli joinpoint. Policzono współczynniki APC (*annual percentage change*) i AAPC (*average annual percentage change*).

Wyniki: Współczynnik SEYLLp z powodu CVD wynosił w 2000 r. 860,3 roku na 10 tys. mężczyzn i 586,9 roku na 10 tys. kobiet. W latach 2000–2004 współczynniki zmniejszały się w średnim rocznym tempie wynoszącym –0,8% wśród mężczyzn i –1,2% wśród kobiet, a w 2014 r. osiągnęły wartości 721,4 roku na 10 tys. mężczyzn i 475,6 roku na 10 tys. kobiet. W najszybszym tempie zmniejszała się liczba utraconych lat z powodu IHD (AAPC = –3,3% w grupie mężczyzn i AAPC = –3,2% w grupie kobiet) oraz z powodu chorób naczyń mózgowych (AAPC = –2,5% w grupie mężczyzn i AAPC = –3,3% w grupie kobiet). Niewielki i nieistotny statystycznie spadek dotyczył $SEYLL_p$ z powodu chorób tętnic, tętniczek i naczyń włosowatych. Zwiększała się natomiast liczba utraconych lat z powodu HF (AAPC = 5,7% w grupie mężczyzn i AAPC = 4,4% w grupie kobiet). W 2014 r. współczynniki $SEYLL_p$ osiągnęły następujące wartości: z powodu IHD — 207,3 na 10 tys. mężczyzn i 99,1 na 10 tys. kobiet, z powodu chorób naczyń mózgowych — odpowiednio 124,3 i 102,2, z powodu HF — odpowiednio 155,3 i 104,9, z powodu chorób tętnic, tętniczek i naczyń włosowatych — odpowiednio 83,1 i 92,3. Każdy mężczyzna zmarły z powodu CVD stracił średnio 19,1 roku w 2000 r. i 17,0 lat w 20014 r. (AAPC = –0,5%). W grupie kobiet wartości $SEYLL_d$ wyniosły 12,6 roku w 2000 r. i 10,4 roku w 2014 r. (AAPC = –1,4%). We wszystkich spośród analizowanych grup przyczyn zgonów u obu płci zaobserwowano istotny statystycznie spadek wartości $SEYLL_d$. W 2014 r. wskaźniki $SEYLL_d$ dla poszczególnych grup przyczyn wynosiły: z powodu IHD — 18,3 roku wśród mężczyzn i 11,3 roku wśród kobiet, z powodu chorób naczyń mózgowych — odpowiednio 17,3 i 11,5, z powodu HF — odpowiednio 16,6 i 10,3, a z powodu chorób tętnic, tętniczek i naczyń włosowatych — odpowiednio 11,0 i 7,7.

Wnioski: W redukcji liczby utraconych lat życia mieszkańców Polski z powodu CVD największy udział mają IHD oraz choroby naczyń mózgowych. W okresie ostatnich 10 lat wzrasta systematycznie liczba utraconych lat życia z powodu HF. Zaobserwowano stały spadek średniej liczby utraconych lat życia przez każdą osobę zmarłą z powodu CVD ogółem oraz w każdej z analizowanych grup przyczyn zgonów, co może świadczyć o lepszych efektach działań profilaktycznych i bardziej skutecznym leczeniu wydłużającym życie pacjentów.

Słowa kluczowe: utracone lata życia, choroby układu sercowo-naczyniowego, przedwczesna umieralność, trendy, Polska