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Medical and Social Characteristics Of Patients and Treatment Outcomes After Coronary Intervention and Coronary Artery Bypass Surgery.

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ABSTRACT

Health and demographic profile of the patient underwent emergency PCI in Almaty city: male (71, 1%), age group 50-69 years old (65%)? Kazakh (51, 1%), citizen of Almaty city (87, 3%), retiree (50, 7%), was admitted to the Emergency First Response hospital (84, 5%), with diagnosis Miocardial Infarction (heart attack) (65, 7%), in most cases at primary stage (73, 3%), front localization zone (57, 1%), with included hypertension (93, 5%), who was implanted with drug-coated stents (86, 6%), as a rule one stent (80, 6%), with favorable treatment outcome (98, 1%). Data resulting from the study provided the basis of the following medical and social profile of patient underwent CABS in emergency cardiac hospitals in Almaty city: male (76,7%), age group 50-69 years old (77,5%), Kazakh (42,9%), citizen of Almaty city (88,8%), retiree (52,5%), was admitted to the Emergency First Response hospital (78,2%), with diagnosis Miocardial Infarction (heart attack) (60,5%), in most cases at primary stage (65, 8%), front localization zone (55, 3%), with included hypertension (89,4%), who was implanted with 3 drug-covered stents (42%), with favorable treatment outcome (97%).

Keywords: medical and social profile, percutaneous coronary intervention (PCI), Coronary Artery Bypass Surgery (CABS), Acute Coronary Syndrome (ACS).

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INTRODUCTION

In 2015 in the Republic of Kazakhstan according to WHO's statistics the value of mortality from cardiocirculatory system disease corresponds 54% [1]. Kazakhstan ranks the first place in terms of mortality from cardiocirculatory system disease among the countries of the European Union, Central and Eastern Europe and Central Asian region. Moreover, the standardized coefficient of mortality of population in the Republic of Kazakhstan due to cardiocirculatory system disease in two times higher than in the countries of European Region [5].

According to the statistics of Ministry of Public Health and Social Development of the Republic of Kazakhstan the cardiac surgery assistance can be received in 26 healthcare organizations, there are 22 rooms for coronary angiography and 29 working angiography plants. A number of studies have shown that socio-demographic characteristics are closely related to the forecast of cardiovascular disease development [2]. In particular, it shows the relationship of clinical signs of cardiovascular disease with age, sex and socio-economic status of patients, their cumulative impact on the length and quality of life [2,3].

Therefore, the identification of these regularities will permit to estimate their impact on the clinical process and to predict the outcome of treatment.

The purpose of this article is to study medical and social profile and outcome of treatment with acute coronary syndrome who underwent PCI and CABG in hospitals that provide emergency and tertiary cardiac care in Almaty

OBJECTS AND METHODS

We analyzed patient records who were admitted to emergency cardiac and cardiac surgery hospitals of Almaty with acute coronary syndrome in the period 2013-2015, which was conducted PCI and CABG. Medical and social characteristics of patients were studied: age, sex, nationality, social status, treatment outcomes of patients. We analyzed 4,650 stories of patients after PCI, and 748 stories of patients after CABG.

RESULTS

In Almaty in 2013 and 2015 there were conducted 4,650 percutaneous coronary interventions (PCI) in all hospitals providing emergency cardiology and cardiac surgery for population: City Cardiac Center in Almaty (CCC), Central Clinical Hospital of the Administrative Department of the President of the Republic of Kazakhstan, the Research Institute of Cardiology and Internal Diseases.

The demographic characteristics of patients population after PCI is given in the table.

Table 1. Age and sex characteristics of patients after PCI in 2013-2015 (% in total)

No	age/sex	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	Total
1	Male	0,06	2,2	14,08	34,1	30,9	16,2	2,4	0,06	100
2	Female	-	0,4	3,3	15,1	36,2	35,8	8,8	0,4	100
3	Both male and female	0,04	1,6	10,9	28,6	32,4	21,9	4,3	0,26	100

In the population of patients who underwent PCI, there is a domination of men (71.1%), women are accounted for 28.9%.

Among the male patients is noted the predominance of the age groups 50-59 years (34.1%) and 60-69 years (30.9%), and among women - 60-69 years (36.2%) and 70-79 years (35.8%). Maximum age among the operated patients was 92 years old, minimum age -28, the average - 62,1 ± 8,8.

Division of operated patients by nationality: Kazakhs - 51,5%, Russians - 39,6%, the Uighurs - 7.8%, other nationalities - 1,1%, reflects the ethnic composition of the inhabitants of Almaty city in 2010 (Kazakhs - 51,06%, Russians - 33.02%; Uighurs - 5.73%) [4].

Most of the operated patients were the citizens of Almaty city (87.3%), patients arrived from other regions of the country - 12.7%. Among the citizens of Almaty the most amount of operated people were from Auezov district (20.5%), next in descending order: Bostandyk (17.4%), Almalinsky (16.4%), Medeu (11.4%), Zhetysu (8.9%), Turksib (12.4%), Alatau (10.9%), Nauryzbay (1.1%) regions.

According to the social status of patients it was observed the following division: retirees - 50.7%, employees - 11.7%, workers - 10.4%, unemployed - 17.8%, people with disabilities of 2 and 3 group on the incidence - 4.7%, self-employed people - 4.0%, housewives - 0.7%.

As a rule, patients admitted hospital in for emergency care (84.5%). The rest of the admissions are presented by organizations of consultative and diagnostic services - 8.8%, spontaneous medical resource utilization of patients - 6.7%.

The main indications for PCI the first place is ranked by myocardial infarction among men (67.9%) and women (66.5%), the second place - unstable angina (32.1 and 34.5%, respectively).

In general, the proportion of patients with myocardial infarction among all the operated patients was 67.5%.

In the effective depths of myocardial infarction with Q wave was 52.9%, without wave Q - 47.1%.

Primary myocardial infarction was met in 73.3% of cases, repeated - 26.7%.

According to localization of damaged area: Front - 57.1% lower - 36.9%, circular - 6.0%.

The complications of underlying disease were observed in 3.9% of cases, where cardiogenic shock dominated (59.4%), rarely - rhythm disturbance and assequence (22.5%); as well as pulmonary edema (8.2%), disease recurrence (3.3%), ventricular fibrillation (3.3%), left ventricular aneurysm - 2.2%, thrombus in the left ventricle (1.1%).

Underlying disease was often accompanied by hypertension, which was recorded in 93.5% of patients. Also was met the following: type 2 diabetes - 17.8%, Chronic Obstructive Pulmonary Disease (COPD) - 4.7%, peptic ulcer in the acute stage - 3.9%, obesity - 2.25%, rhythm disturbance and assequence - 0.4%.

Operated patients were implanted: drug-coated stents in 86.6% of cases, bioabsorbable stents - 10.9%, metal stents - 2.5%.

Most of patients are often implanted with one stent - 80.6%; the rest: two stents - 16.9%, three - 2.35%, four - 0.2%, five - 0.02% of cases. The share of intra-operative and postoperative complications was 0.1%.

The positive effect showing favorable evolution (recovery, improvement) was observed in 98.1% of patients after PCI.

Number of bed-days that patients spent in hospital in average is $11,4 \pm 3,2$; maximum - 34, minimum - 1.

All hospitals that provide emergency cardiology and cardiac care to the population of Almaty city from 2013 to 2015 performed coronary artery bypass grafting (CABG) for 748 patients.

The demographic characteristics of patients population after CABG is shown in the table.

Table 2. Age and sex characteristics of patients after CABG in 2013-2015. (% in total)

Age/ sex	30-39	40-49	50-59	60-69	70-79	80-89	Total
Male	0,5	7,2	37,6	39,9	13,9	0,9	100
Female		1,6	14,2	51,4	31,7	1,1	100
Both male and female	0,5	5,9	32,1	42,6	17,9	1,0	100

As it is seen in the table, men dominate in a patient population: among those who made CABG - 76.7%. Among patients operated CABG more men with age 60-69 years old (39.9%) and 50-59 years old (37.6%) and women 60-69 years old (51.4%) and 70-79 years old (31.7 %). Maximum age among the operated patients was 84 years old, minimum age – 34 years old and in average 62,01 ± 8,35.

According to the national status it is observed the following characteristics: a higher percentage of Kazakhs - 42,9%, followed by Russians - 40,3%, the Uighurs - 8.2%, Tatars - 2.6%, Koreans - 1.7% and other nationalities less than 1 %. That also reflects the ethnic composition of the inhabitants of Almaty city in 2010 (Kazakhs - 51.06%, Russians - 33.02%; Uighurs - 5.73%) [4].

The most of operated patients were citizens of Almaty city - 88.8%, from other regions of the country - 11.2%. Among the citizens of Almaty city, most of the inhabitants were operated the habitats of Auezov district - 22.8%, Bostandyk District - 18.2%, Almaly district - 18.0%, Medeu district - 11.4%, Zhetysu district - 11.2% Turksib district - 10.9%, Alatau district - 5.8%, Nauryzbay district - 1.7%.

According to the social status of patients it was observed the following distribution: retirees - 52.5%, workers - 10.4%, unemployed - 19%, employees - 8.8%, people with disabilities of the 2nd and 3d groups on the incidence - 5.2% self-employed people- 3.6%, housewives - 0.5%.

The main indications for CABG became the patients with myocardial infarction among men (61.6%) and women (56.8%), and unstable angina - 38.2 and 43.2 %% respectively. In general, the proportion of patients with myocardial infarction among all the operated patients was 60.5%. In the effective depths of myocardial infarction with Q wave was 40.9%, without Q wave - 59,1%. In terms of the primary occurrence of myocardial infarction was 65.8%, repeated - 34.2%. According to the localization of damaged area: front - 55.3%, back- 27.4%, circular - 17.3%.

Complications of underlying disease observed in 10.6% cases. Among the complications: relapsing course of disease was observed in 27.8% cases, cardiogenic shock, 24.0%, rhythm disturbance and asequence - 22.9%, ventricular fibrillation - 13.2%, pulmonary edema - 6.0%, cardiogenic shock and pulmonary edema - 4.9%, Dressler's syndrome - 1.2%.

Accompanied with comorbidity: hypertension was 89.4%, Type 2 diabetes - 23.7%, ulcer in the acute stage - 4.5%, 9.0% obesity, COPD - 3.4%, rhythm disturbance and asequence - 2.9%.

Operated patients were implanted from 1 to 5 stents: the largest share amounted operations with 3 stents - 42%, with 2 stents - 33.2%, with one stent- 13.1%, with 4 stents - 11.2%, with 5 stents - 0.5%.

Intraoperative complications occurred in 2.7% of cases, postoperative complications occurred in 10,6% of cases. Most of the surgical procedures were carried out without the use of cardiopulmonary bypass - 64,2%, with unit - 35.8%.

As a rule, patients admitted hospital in for emergency care (78.2%). The rest of the admissions are presented by organizations of consultative and diagnostic services – 13,4%, spontaneous medical resource utilization of patients- 8.4%.

The positive effect showing favorable evolution (recovery, improvement) was observed in 97% of patients after CABG.

Number of bed-days that patients spent in hospital in average is $16,15 \pm 6,04$; maximum - 62, minimum - 1.

CONCLUSION

Thus, the received information provided the basis of the following health and social profile of the patient underwent PCI in emergency hospitals in Almaty: male (71.1%), age group 50-69 years old, (65%), Kazakhs (51.5%), a citizen of Almaty (87.3%), retiree (50.7%), admitted in for emergency care hospital (84.5%), with a diagnosis of "myocardial infarction" (67.5%), most often with primary case (73.3%), front localization zone (57.1%), with associated hypertension (93.5%), who is often implanted with drug-coated stents (86.6%), as a rule one stent (80.6%), with a positive treatment outcome (98.1%).

Thus, the received information provided the basis of the following health and social portrait of the patient subjected to CABG in emergency cardiac hospitals in Almaty: male (76.7%), age group 50-69 years old (77.5%), Kazakhs (42, 9%), a citizen of Almaty city (88.8%), retiree (52.5%) admitted in for emergency care hospital (78.2%), with a diagnosis of "myocardial infarction" (60.5%), most often with primary case (65.8%), anterior localization zone (55.3%), with concomitant arterial hypertension (89.4%), who was implanted three stents (42%), with a positive treatment outcome (97%).

Further studies are required to evaluate the relationship between clinical characteristics of the patients and the degree of disability after percutaneous coronary intervention and coronary artery bypass surgery, and survival of these activities.

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