

Trends in pharmacological therapy of patients referred for coronary artery bypass grafting between 2004 and 2008: a single-centre study

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Abstract

Background: Previous reports of pharmacological treatment concerning the surgical approach to coronary artery disease emphasise the underused possibilities of pharmacological treatment.

Aim: To evaluate trends in the level of compliance between the pharmacological treatment administered in clinical practice and formal guidelines in patients undergoing coronary artery bypass grafting (CABG).

Methods: For this retrospective study, medical data from 2827 consecutive patients treated in a single cardiac surgery centre from 2004 to 2008 were collected. Among them, 1253 underwent surgical procedures as isolated CABG and were enrolled in the study. The pharmacological treatment was analysed at two points of the perioperative period: the day of admission to hospital and the day of discharge from hospital. We collected information about the following groups of drugs prescribed: aspirin, β -blockers, angiotensin converting enzyme inhibitors (ACEI), statins, and sartans.

Results: Before surgery, 89.78% of the total population of patients received β -blockers, 81.56% ACEI, 88.27% statins, and 3.19% sartans. After CABG, 94.48% of patients received aspirin, 96.04% β -blockers, 85.16% ACEI, 92.09% statins, and 2.14% sartans. During the years analysed, a declining trend away from preoperative prescription of β -blockers ($p < 0.001$), ACEI ($p < 0.001$), and statins ($p < 0.001$) was observed. In contrast, sartans ($p < 0.01$) were more often administered over time. At the date of discharge, the tendency to prescribe β -blockers ($p < 0.05$), ACEI ($p < 0.001$), and statins ($p < 0.001$) was also declining.

Conclusions: Pharmacological treatment of ischaemic heart disease in the pre- and postoperative period was underutilised. Positive changes were observed in comparison to previous reports from other countries.

Key words: coronary artery bypass grafting, coronary artery disease, pharmacotherapy, epidemiology

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INTRODUCTION

Compliance with the recommendations set by the Scientific Societies regarding pharmacological treatment of coronary artery disease (CAD) is essential for patients undergoing coronary artery bypass grafting (CABG) [1]. The recommended treatment for secondary prevention has evolved rapidly since the early 1990s. The ISIS-2 trial proved a reduction in mortality of patients receiving acetylsalicylic acid (ASA) [2, 3]. Further studies on inhibition of platelet function were continued and brought new molecules (e.g. P2Y12 and glycoprotein IIb/IIIa

platelet–receptor blockers) that improved long-term clinical outcomes [2]. The following years brought to light some benefits, namely a reduction in mortality among patients with left ventricular dysfunction followed by myocardial infarction (MI), after long-term use of angiotensin converting enzyme inhibitors (ACEI) [2, 4]. Those results were also supported by a reduction in mortality after administration of β -blockers [2].

The latest guidelines recommend that patients with CAD should receive ASA, β -blockers, ACEI, and statins, unless contraindicated [1]. ASA prevents thrombus formation

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and has an antiplatelet effect, which might prevent stenosis in the previously grafted vessels [5]. Additionally, this drug has anti-inflammatory properties [6]. β -blockers have antiarrhythmic properties, thus reducing the number of postoperative arrhythmias. Moreover, they reduce blood pressure, heart rate, and the need for oxygen in myocardial tissue [7]. Therefore, β -blockers reduce the incidence of perioperative ischaemia [8]. ACEI reduces systemic vascular resistance, inhibits left ventricular remodelling after MI, and stabilises the endothelium [9]. Statins decrease mortality, the risk of MI, and reoccurrence of unstable coronary disease [10]. Additionally, they reduce the risk of ischaemic stroke, stabilise atherosclerotic plaque, improve endothelial function, and reduce the tendency of clot formation [11].

Previous reports concerning the surgical approach to CAD emphasise the underused possibilities of pharmacological treatment in clinical practice [12]. However, such studies have not been conducted in a population of patients who have undergone a surgical procedure in Europe in recent years, which would show the actual tendency in the cardiac surgery centres of the European Union.

The aim of this study was to evaluate trends in the level of compliance between the pharmacological treatment administered in clinical practice and formal guidelines in patients undergoing CABG.

METHODS

The study included 1253 consecutive CABG patients who underwent surgical procedures without cardiopulmonary bypass (OPCAB) in the Department of Cardiac Surgery, Medical University of Warsaw, from 2004 to 2008. The inclusion criteria were surgery through median sternotomy and the operator being one cardiac surgeon. The exclusion criteria encompassed a combined procedure (CABG combined with any other cardio-surgical procedure) and conversion of surgery with a cardiopulmonary bypass.

A retrospective cross-sectional study was conducted on the basis of medical data of inpatients hospitalised in the Units of the Department of Cardiology, Medical University of Warsaw, Poland. Parameters were collected into a digital database, and included: demographics of patients, risk factors for CAD, and pre- and postoperative pharmacological therapy. Demographic parameters included: gender, age, height, body weight, and the number of residents in the same town/city. Risk factors for CAD were several chronic associated diseases for which an associated occurrence had been proven. We verified from the documentation comorbidity of arterial hypertension, impaired glucose metabolism, chronic kidney disease, active tobacco smoking, and history of previous smoking — at least two weeks of previous smoking. This period of time was accepted because the first two weeks are critical in determining quitting failure rates [13]. Additionally, we included co-occurrence of other diseases that can have

a negative impact on treatment outcome in patients who have undergone a surgical procedure, such as: chronic lung diseases, anaemia, extracardiac arteriopathy, neurological dysfunction severely affecting day-to-day functional activity, preoperative serum creatinine level > 2.3 mg/dL, and previous cardiac surgery requiring pericardiectomy. Additionally, we distinguished an “accelerated” mode of performing an operation (29.77% of patients), which were in fact elective surgeries, usually performed 5–7 days from acute coronary syndrome.

Preoperative pharmacotherapy was obtained from medical records received at admission to the Department of Cardiac Surgery. In order to standardise the results, we collected data about drugs administered to the patients: ASA, β -blockers, ACEI, statins, and angiotensin II receptor antagonists (ARBs). Previous research demonstrated that they could be administered alternatively to patients with contraindications to ACEI [14]. We did not collect information concerning the international names of the drugs and their doses. However, having those patients in our department we were aiming to administer the maximum possible tolerated doses.

Statistical analysis

The results for measurable data were presented as mean values \pm standard deviation. The χ^2 test of independence was used for comparison of the frequency of occurrence of dichotomous variables. Statistical analysis was performed with the software SPSS for Windows 17.0. Statistical significance was determined at the level of $p < 0.05$.

Definitions

“Accelerated” mode was defined as the transfer of the patient to the Department of Cardiac Surgery directly from another clinic/cardiology ward without discharging from that hospital. To determine this mode of hospital admission, discharge letters from clinics/cardiology wards from which the patient was transferred for surgery were verified. Such an approach refers to a lower mortality in this group of patients whose operations can be postponed [15]. Another term introduced is “impaired glucose metabolism”. This state occurs when blood glucose is greater than 200 mg/dL; however, this condition is not necessarily associated with the diagnosis of diabetes and can appear physiologically in the acute phase of MI [16]. This term was used also in patients with diagnosed diabetes. Chronic kidney disease was defined solely by estimation of glomerular filtration rate (GFR) < 60 mL/min/1.73 m². All patients admitted to the Cardiac Surgery Department had active and past smoking described in their medical documentation. Anaemia was defined as a haemoglobin level on admission to hospital below 12 g/dL in women and less than 13.5 g/dL in men. We have introduced the “logistic EuroSCORE”, which is the anticipated mortality according to the logistic regression equation. Our calculations were based on a calculator downloaded from the official website [17].

RESULTS

The study included data of 1253 patients, aged 65 ± 9.6 years, with women constituting 26.26% of the group analysed. The average body mass index was 27.97 ± 4.42 kg/m². We found the following comorbidities: hypertension (77.73%), impaired glucose metabolism (58.58%), active smoking (21.71%), past-smoking (42.38%), chronic kidney disease (28.73%), anaemia (29.53%), chronic lung diseases (11.01%), extracardiac arteriopathy (26.42%), neurological dysfunction severely affecting day-to-day functional activity (9.5%), and preoperative serum creatinine above 2.3 mg/dL (3.75%). Previous cardiac surgery was reported for 1.28% of patients. On admission, all patients were measured for systolic (135.07 ± 22.46 mm Hg) and diastolic blood pressure (78.01 ± 15.85 mm Hg) and heart rate (70.04 ± 12.98 /min). They were assessed for left ventricular ejection fraction (51.23 ± 11.04 %) and risk of failure, evaluated with logistic EuroSCORE (7.2 ± 9.85 %).

Most of the operations were elective (56.03%), and those patients were most likely to have been treated due to ischaemic heart disease preoperatively. However, some patients underwent urgent (10.45%)/emergency (3.75%) surgeries and thus could not have been consulted before the surgery (Table 1).

In the analysed group nearly 80% of patients received ACEI before surgery, and ARBs were administered to nearly 3%. Simultaneously, fewer than 90% of patients were prescribed β -blockers and statins. When analysed in the subgroup of patients operated electively, nearly 75% received ACEI before surgery, and ARBs were administered to nearly 4% of patients. In parallel, nearly 85% of patients were prescribed β -blockers and statins. When the subgroup of patients operated non-electively was analysed, ACEI were administered to nearly 85% of patients before surgery and ARBs to more than 2%. However, more than 90% of those patients had been prescribed β -blockers and statins (Table 2).

In the overall patient population we found some trends in changes of the pharmacological treatment prescribed before CABG. β -blockers were most commonly used in 2006 (95.7%), in comparison to 2004 (85.5%) and 2008 (79.5%) ($p < 0.001$). Similarly, ACEIs were prescribed

to 89.5% of patients preoperatively in 2006 (2004 — 73.9% and 2008 — 68.3%, $p < 0.001$). Patients prior to surgery were administered statins more and more commonly from 2004 (84.1%) to 2007 (93.7%). In 2008, however, the number of patients receiving statins before CABG fell to 78.9%

Table 1. Characteristics of the population (n = 1253)

Demographic data	
Age	65.49 \pm 9.59
Sex (female)	26.26%
Body mass index [kg/m ²]	27.97 \pm 4.42
Medical history	
Hypertension	77.73%
Impaired glucose metabolism	58.58%
Smoking	21.71%
Past-smoking	42.38%
Chronic kidney disease	28.73%
Anaemia	29.53%
Chronic lung diseases	11.01%
Extracardiac arteriopathy	26.42%
Neurological disorders	9.5%
Preoperatively serum creatinine above 2.3 mg/dL	3.75%
Cardiac surgery in the past	1.28%
On admission day	
LVEF	51.23 \pm 11.04
Logistic EuroSCORE	7.2 \pm 9.85
Systolic BP [mm Hg]	135.07 \pm 22.46
Diastolic BP [mm Hg]	78.01 \pm 15.85
Heart rate [/min]	70.04 \pm 12.98
Mode of the operation	
Emergency	3.75%
Urgent	10.45%
Accelerated	29.77%
Elective	56.03%

LVEF — left ventricular ejection fraction; BP — blood pressure

Table 2. Pharmacological treatment administered before and after coronary artery bypass grafting (CABG)

	All patients		Elective operations		Non-elective operations	
	Before CABG	After CABG	Before CABG	After CABG	Before CABG	After CABG
ASA		94.48%		94.7%		94.01%
β -blocker	89.78%	96.04%	85.3%	94.89%	93.33%	96.5%
ACEI	81.56%	85.16%	76.4%	81.06%	85.61%	87.74%
Statins	88.27%	92.09%	84.21%	89.77%	91.45%	93.43%
ARB	3.19%	2.14%	4.17%	2.46%	2.42%	1.9%

ASA — acetylsalicylic acid; ACEI — angiotensin converting enzyme inhibitors; ARB — angiotensin II receptor antagonists (sartans)

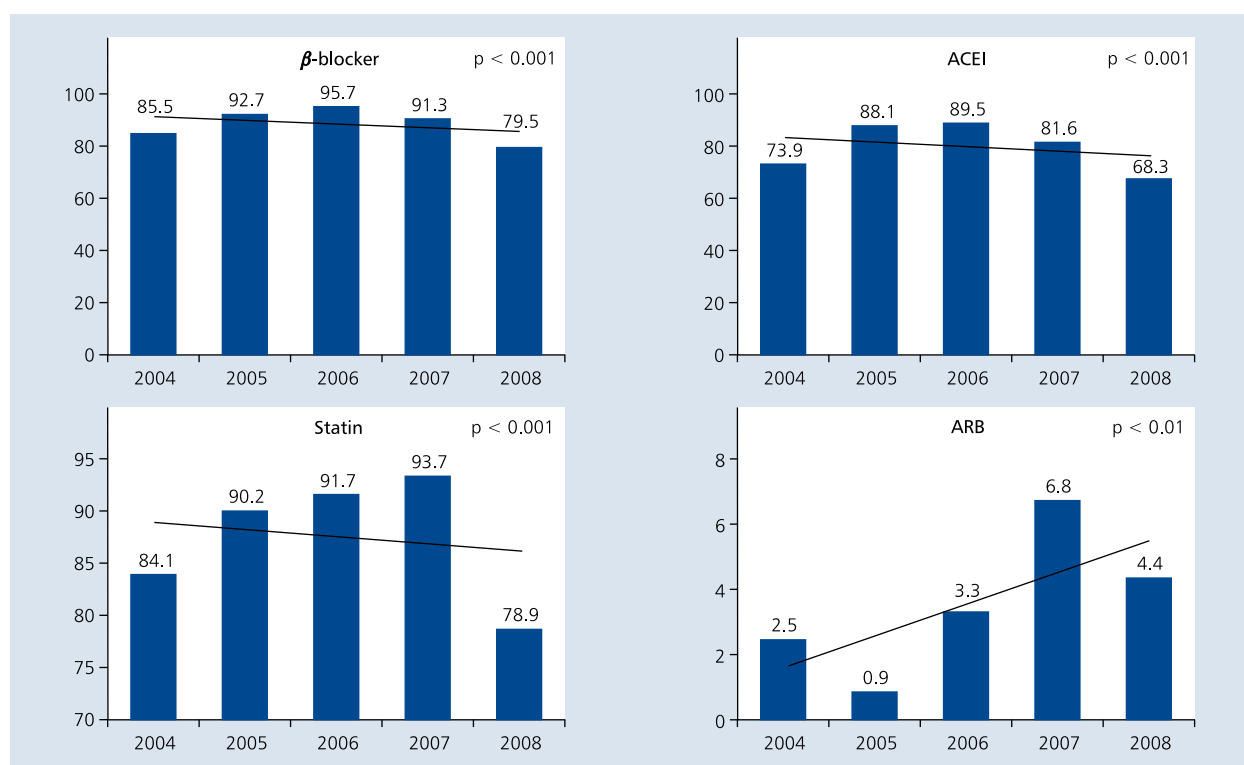


Figure 1. Changes of the pharmacological treatment before coronary artery bypass grafting. Data expressed as the percentage of all operated patients. Black lines marked five-year trends in the frequency of prescribing different groups of drugs; ACEI — angiotensin converting enzyme inhibitors; ARB — angiotensin II receptor antagonists

($p < 0.001$). From 2004 to 2007, an increasing tendency was observed for ARBs preoperatively from 2.5% in 2004 to 6.8% in 2007, followed by a decreasing ratio of 4.4% of patients, in 2008 ($p < 0.01$), who received those drugs (Fig. 1). In the subgroup of patients operated electively, the following trends were found: β -blockers and statins were administered without significant changes ($p > 0.05$); ACEIs were administered less often in 2004 and 2007 than in the remaining years ($p < 0.001$); and from 2004 to 2007, an increasing tendency was observed for administration of ARBs preoperatively, from 0.58% in 2004 to 7.14% in 2007, which was followed by a declining ratio of 5.17% of patients in 2008 ($p = 0.001$) (Fig. 2). In the subgroup of patients operated non-electively, the following trends were found: β -blockers, ACEI, and statins were administered least commonly in 2004 and 2008, whereas no significant changes could be found in other years (respectively, $p < 0.001$; $p < 0.001$; $p < 0.001$). Finally, ARBs were administered without any significant changes (Fig. 3).

On the day of discharge from the Department of Cardiac Surgery, analysis of all patients showed that nearly 85% of patients received ACEI, and more than 2% were given ARB. We found that ASA and β -blockers were received by about 95% of patients, and statins in almost 92% cases. When the subgroup of patients operated electively was analysed, nearly 80% received ACEI after the surgery, and ARBs were administered

to nearly 2% of patients. Nearly 95% patients also received ASA and β -blockers. Statins were administered in nearly 90% of cases. When analysed in the subgroup of patients operated non-electively, more than 85% of cases received ACEI, and ARBs were administered to nearly 2%. Simultaneously, about 95% patients received ASA, β -blockers, and statins (Table 2).

As far as the overall patient population was concerned, ASA and ARBs were prescribed to patients without any significant changes in time ($p > 0.05$). Initially, the number of patients who had statins prescribed increased (from 92.5% in 2004 to 94.1% in 2007), whereas in 2008 the number of patients who were administered such a treatment fell to 82.1% at discharge from the Department ($p < 0.001$). β -blockers were prescribed in 94.8% of patients in 2004 and 98.8% in 2005. In the subsequent years, the number of patients from this group who were administered the medications remained at a comparable level (2006 — 95.2%, 2007 — 94.1%, 2008 — 94.7%; $p < 0.05$). On the other hand, ACEIs were less frequently prescribed, falling from 92.3% in 2004 to 64.9% in 2008 ($p < 0.001$) (Fig. 4). In the subgroup of patients operated electively, the following trends were found. ASA and statins were administered without significant changes. Meanwhile, β -blockers were less frequently prescribed, decreasing from 2005 (99.52%) to 2007 (92.86%), while in 2008 the number of patients administered such treatment rose to 96.49% ($p = 0.010$). Simultaneously, ACEIs

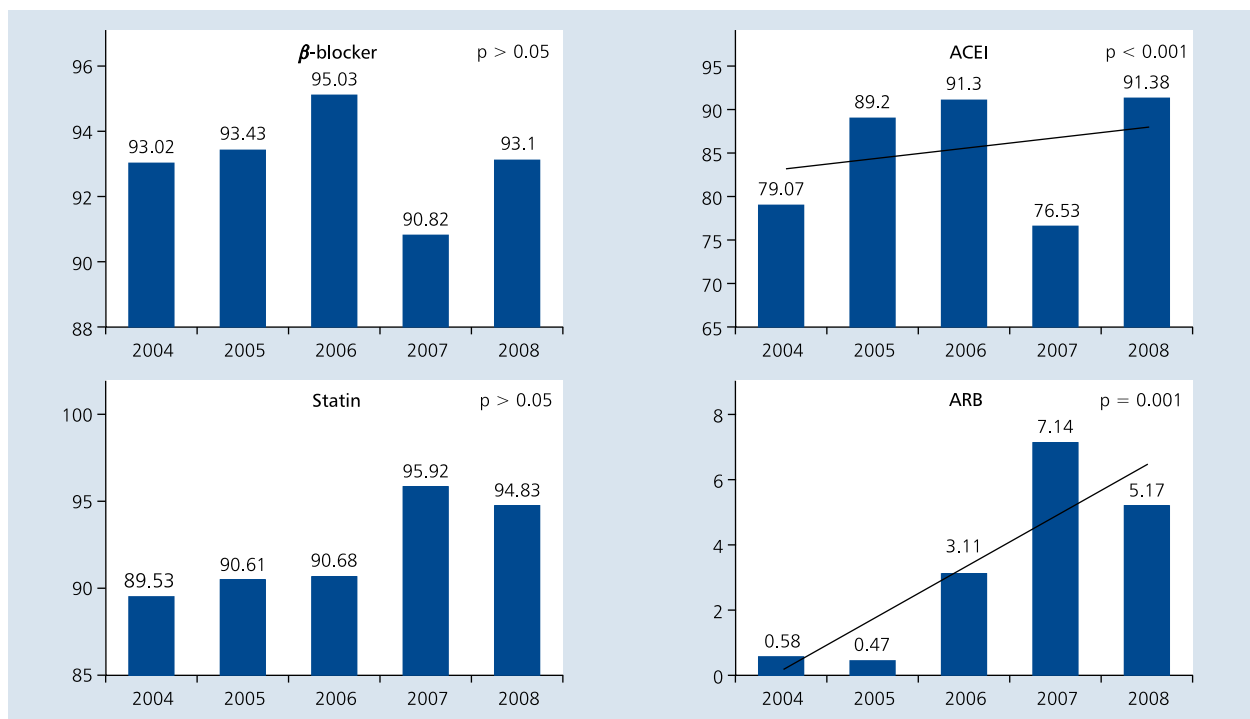


Figure 2. Changes in the pharmacological treatment before coronary artery bypass grafting. Data expressed as the percentage of electively operated patients. Black lines mark five-year trends in the frequency of prescribing different groups of drugs; ACEI — angiotensin converting enzyme inhibitors; ARB — angiotensin II receptor antagonists

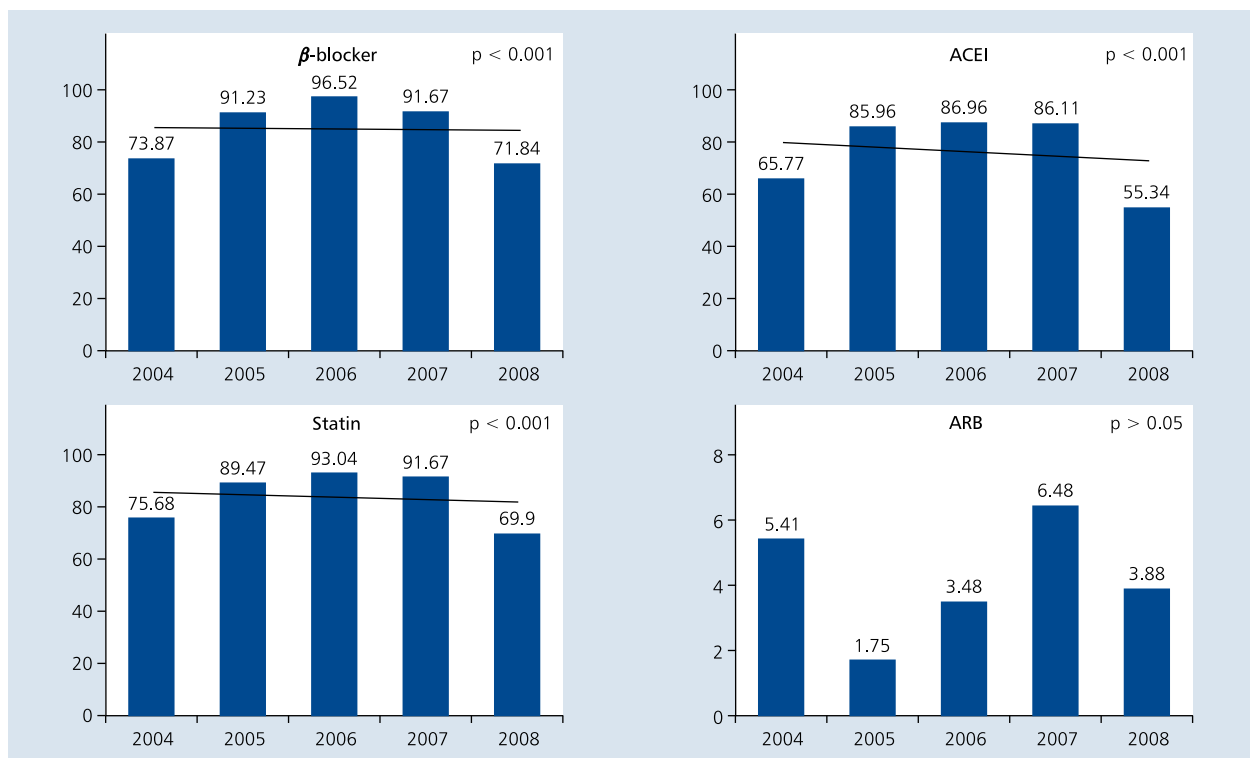


Figure 3. Changes in the pharmacological treatment before coronary artery bypass grafting. Data expressed as the percentage of non-electively operated patients. Black lines mark five-year trends in the frequency of prescribing different groups of drugs; ACEI — angiotensin converting enzyme inhibitors; ARB — angiotensin II receptor antagonists

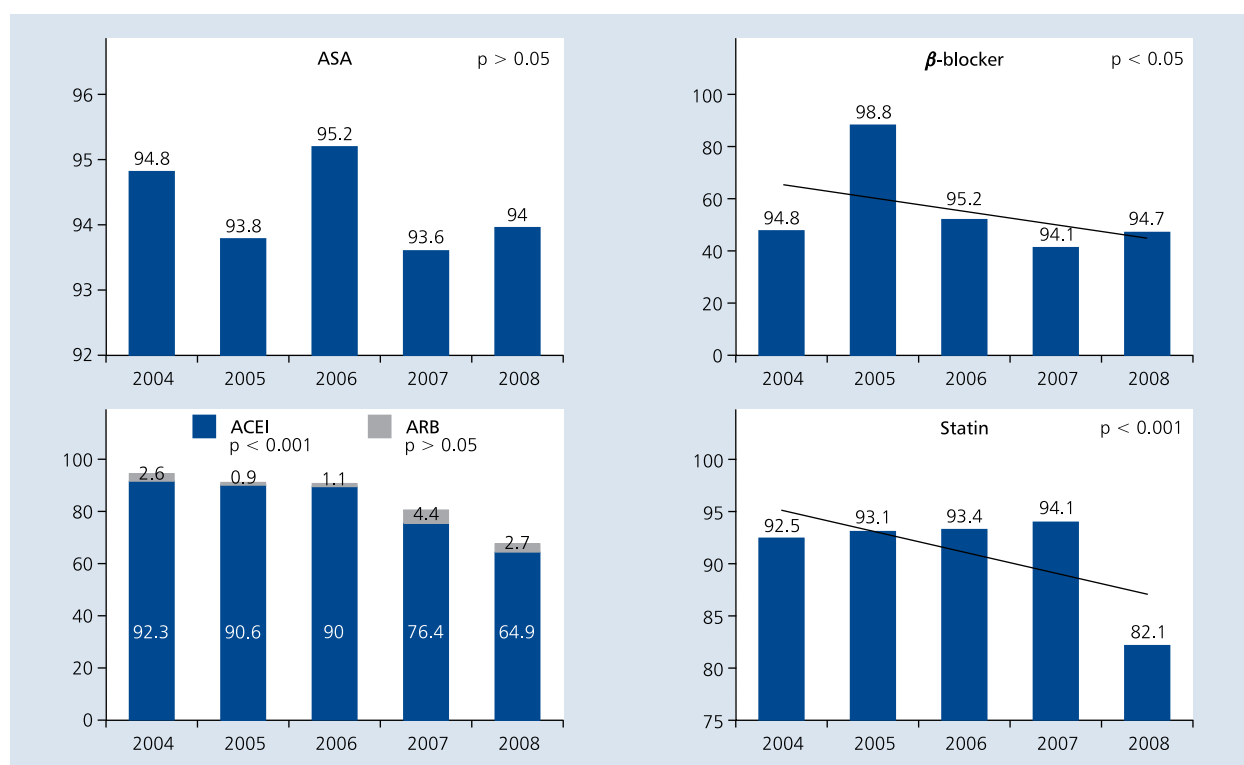


Figure 4. Changes in the pharmacological treatment after coronary artery bypass grafting. Data expressed as the percentage of all operated patients. Black lines mark five-year trends in the frequency of prescribing different groups of drugs; ACEI — angiotensin converting enzyme inhibitors; ARB — angiotensin II receptor antagonists; ASA — acetylsalicylic acid

were less frequently prescribed, decreasing from 92.36% in 2006 to 71.93% in 2008 ($p < 0.001$). However, ARBs were more commonly prescribed from 0.48% in 2005 to 6.12% in 2007 ($p = 0.026$) (Fig. 5). The following trends were found in the subgroup of patients operated non-electively: ASA, β -blockers, and ARBs were administered without any significant changes; ACEIs were less frequently prescribed, decreasing from 91.35% in 2004 to 60.64% in 2008 ($p < 0.001$); and statins were significantly less often administered in 2008 than in the remaining years ($p < 0.001$) (Fig. 6).

DISCUSSION

This is the first systematic study in such a large population of Polish patients who underwent surgical procedures performed by one cardiac surgeon in a reference cardiac surgery centre. We confirmed that the secondary pharmacological prevention of CAD is underused also in patients at discharge after CABG.

Patients prior to OPCAB hospitalised from 2004 to 2008 showed improvement when administered pharmacological treatment. In the period 2004–2007, more and more patients received β -blockers, ACEI, statins, and sartans. However, in 2008 there was a clear reduction in the number of patients taking the recommended comprehensive pharmacological treatment. This is probably due to the different current profile of patients who underwent surgical

procedures in 2008. Patients in that period of time more often underwent non-elective surgery than in the other years of observation (2004 — 39.2%; 2005 — 34.9%; 2006 — 41.7%; 2008 — 64%). This affects the possibilities of treatment before the surgery, as shown by our results. Additionally, these patients had many more aggravating factors than the patients after surgical procedures, and thus had more contraindications against the recommended pharmacological treatment. Nonetheless, patients admitted to the Department of Cardiac Surgery had treatment closer to the one recommended by the Cardiac Societies than those discussed in previously published studies (Table 3) [12].

Patients after CABG are a group highly motivated to follow the medical recommendations after surgery, which gives an opportunity for high compliance with the doctors' recommendations [18]. After surgical revascularisation, all patients without contraindications should be treated with ASA, β -blockers, ACEI, and statins. The results of previous studies draw attention to the underused possibilities of pharmacological treatment, which emphasises the global trend. From 2003 to 2006 the underuse tendency remained true for pharmacological treatment after CABG in the United Kingdom, although improvement over the preceding years in administrations prescribed to patients was evident. It was found that ASA and statins were prescribed to 92% of the

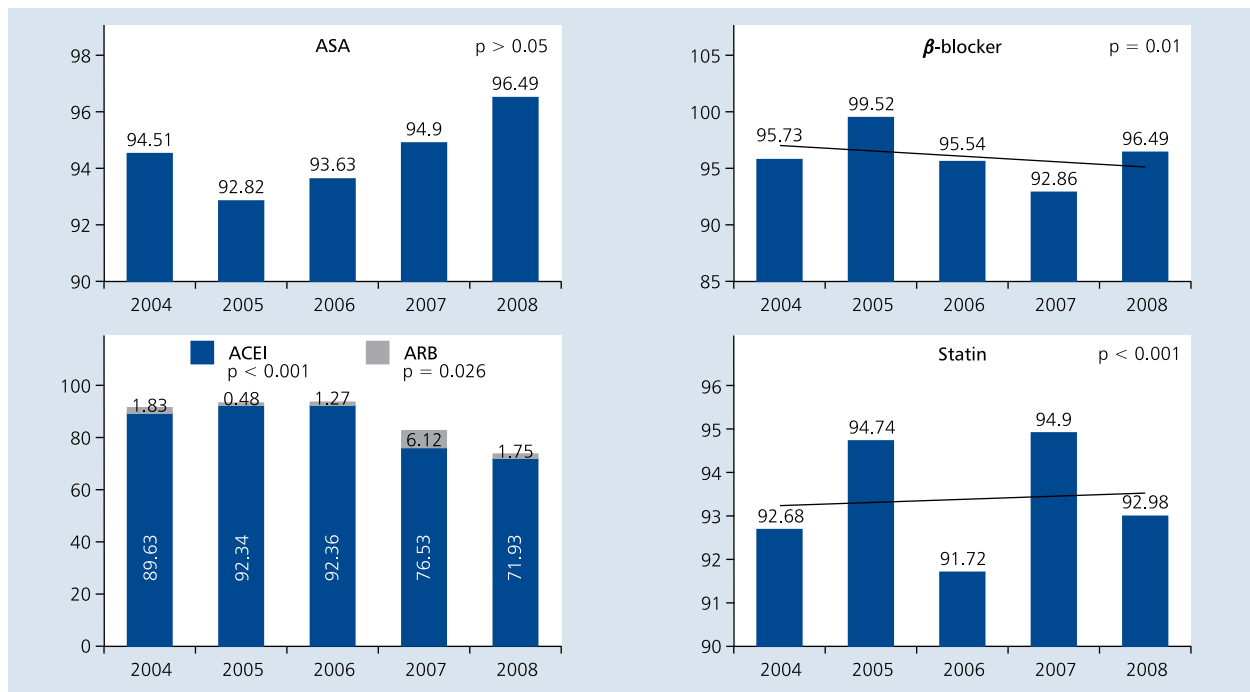


Figure 5. Changes in the pharmacological treatment before coronary artery bypass grafting. Data expressed as the percentage of electively operated patients. Black lines mark five-year trends in the frequency of prescribing different groups of drugs; ACEI — angiotensin converting enzyme inhibitors; ARB — angiotensin II receptor antagonists; ASA — acetylsalicylic acid

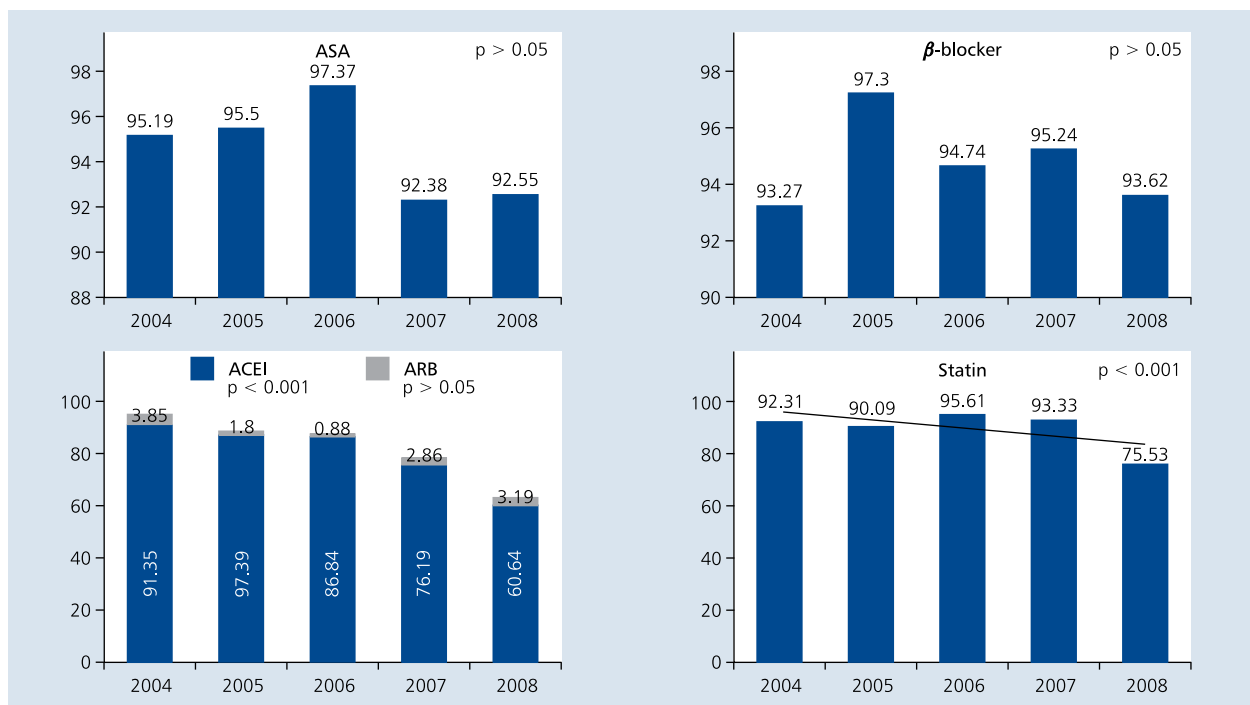


Figure 6. Changes in the pharmacological treatment before coronary artery bypass grafting. Data expressed as the percentage of non-electively operated patients. Black lines mark five-year trends in the frequency of prescribing different groups of drugs; ACEI — angiotensin converting enzyme inhibitors; ARB — angiotensin II receptor antagonists; ASA — acetylsalicylic acid

Table 3. Pharmacotherapy for patients admitted to hospital before coronary artery bypass grafting. Selected studies. Data from the present study in the population of all patients

	EUROASPIRE II, 2001 [12]	Present study all patients (2004–2008)
ASA	73.1%	–
β -blockers	72.6%	89.78%
ACEI	36.4%	81.56%
Statins	47.9%	88.27%

Abbreviations as in Table 2

patients, 79% received β -blockers, and 55% ACEI [19]. This was confirmed in the EUROASPIRE II multicentre study, which concluded that in 1999–2000 87.9% of Europeans after CABG received antiplatelet therapy, 54.8% β -blockers, 38.7% statins, and 30% ACEI. However, 91.5% of Polish patients at the time received antiplatelet therapy, 61.9% were treated with β -blockers, 51.3% received ACEI, and 42.8% statins [12]. Further reports from five units in southern Poland showed improvement in administration of all four groups of drugs: ASA 100%, β -blockers 76.3%, ACEIs/ARBs 73.7%, and lipid lowering drugs 84.2% [20]. A recent report from Canada also showed improved secondary prevention at discharge after CABG in comparison to therapy before surgery. In the early postoperative period, ASA, β -blockers, and statins were administered to 96%, 94%, and 95%, respectively, whereas use of ACEIs/ARBs was minimum at 42%. However, their data explicated the trend — deteriorating compliance with administrations in pharmacotherapy — one year after the surgery. In the annual post-CABG period, ASA, β -blockers, statins, and ACEIs/ARBs were prescribed to 95%, 84%, 84%, and 65%, respectively [21]. As part of the present study, we found that patients discharged from the Cardiac Surgery Department received pharmacological treatment that did not fully correspond to the one recommended by the Scientific Societies. On the other hand, there was a positive tendency for prescribing a more complete treatment, which is in line with the guidelines for the treatment of CAD (Table 4).

Patients in our series, discharged from the Department, usually received β -blockers, with the highest ratio in 2005. In

the remaining years, the degree of patients treated with the above therapy was at a similar level, although there was a trend towards less frequent prescription of drugs in this group. ACEIs were the least commonly prescribed group of drugs. The study showed a decreasing trend to prescribe such medications. On the other hand, we found, except for in 2008, that there was a trend towards more frequent prescribing of ARBs, which could be used interchangeably in patients with contraindications for ACEI [14]. Statins were less often administered during the analysed years. However, patients in our study were even more burdened with comorbidities over time, which undoubtedly could translate into contraindications against use of all the recommended medications on the day of discharge from hospital. Moreover, every patient after a cardiac surgery in Poland is transferred to a rehabilitation centre where she/he should be further monitored by cardiologists. In a previously published paper from southern Poland improvement was seen in administered pharmacotherapy in β -blockers of 12.2%, ACEIs/ARBs of 3.2%, and lipid lowering drugs of 4.3%; however, ASA was administered less often in 11.5% of cases [20]. We have also shown that patients operated non-electively have higher chances of receiving a complete treatment than those operated electively.

To improve quality of medical care in cardiac surgery units in the United States, the Joint Commission on Accreditation of Healthcare Organisations introduced a scale of quality of medical care after the MI, which among others included 18 parameters. Among the factors determining the quality of care there were three concerning drugs recommended for outpatient treatment at discharge from hospital (ASA, ACEI, and β -blockers). Thanks to such clearly set criteria, after two years it was found that hospitals which at entry to the project had a low quality of treatment achieved greater improvements than those that had a good level of pharmacological treatment. An increasing frequency of prescribing drugs such as ASA, ACEI, and β -blockers has been demonstrated [22]. An additional project was introduced in Alabama (USA) to verify and improve a recommended treatment. After two years of observation, it was found that the introduction of such an initiative affected the quality of outpatient treatment. Prescriptions of perioperative β -blockers rose (from 65% in 1999 to 76% of patients in 2001); dyslipidaemia was diagnosed more

Table 4. Pharmacotherapy for patients discharged from hospital after coronary artery bypass grafting. Chosen studies. Data from the present study in the population of all patients

	EUROASPIRE II, 2001 [12]	Turley et al., 2008 [19]	Barry et al., 2014 [21]	Present study all patients (2004–2008)
ASA	87.9%	92%	96%	94.48%
β -blockers	54.8%	79%	94%	96.04%
ACEI	30%	55%	ACEI/ARB 42%	85.16%
Statins	38.7%	92%	95%	92.09%

Abbreviations as in Table 2

often (from 52% to 57% of patients); and, more importantly, appropriate pharmacological (from 45% in 1999 to 53% in 2001) and non-pharmacological treatments (from 74% in 1999 to 91% in 2001) were prescribed [23]. In Poland, the National Register of Cardiac Surgery does not collect information concerning pharmacological treatment [24]. Introduction of such data to the Register, following the initiatives carried out in the United States, could help to improve the quality of care in cardiac surgery clinics in Poland.

Limitations of the study

A limitation of our study is that it is a retrospective analysis of selected parameters of patients' clinical profiles based on medical records. It limits indirect collection of medical data. In such a study protocol it is often difficult to find a direct contraindication to a recommended treatment. However, patients at higher risk of bleeding (rarely performed due to bleeding re-sternotomy 4 vs. 60 patients or less significant postoperative bleeding was observed regardless of the method of treatment 2 vs. 32 patients) did not receive ASA. ACEIs were less frequently administered when coexisting hypertension was not found (128 vs. 814 patients) or in patients with impaired glucose metabolism (113 vs. 585 patients). When intolerance to ACEI was found, ARBs were usually prescribed. β -blockers were usually not administered when intolerance to such a treatment was noticed. Patients with chronic kidney disease often did not receive statins (35% in this group had a GFR < 30 mL/min/m²); others did not receive those drugs mostly due to weak postoperative convalescence. Moreover, qualification of a patient's health status is also problematic, e.g. neurological status, which was possible only after verification of preoperative medical documentation or was described as neurological dysfunction severely affecting day-to-day functional activity when assessed EuroSCORE during hospitalisation. However, we disqualified patients who had no neurological symptoms and were fully independent from this group. On the other hand, such data reflects the everyday clinical management of patients, which is not always seen in randomised clinical trials.

CONCLUSIONS

Pharmacological treatment of ischaemic heart disease in pre- and postoperative period was underutilised. Patients operated non-electively have higher chances of receiving complete treatment than those operated electively. Positive changes were observed in comparison to previous reports from other countries.

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Conflict of interest: none declared

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Zmiany farmakoterapii stosowanej u pacjentów poddawanych kardiochirurgicznej rewaskularyzacji wieńcowej w latach 2004–2008: doświadczenia jednośrodkowe

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Streszczenie

Wstęp: Dotychczas opublikowane badania dotyczące farmakoterapii u pacjentów poddawanych chirurgicznej rewaskularyzacji wieńcowej (CABG) podkreślają nie w pełni wykorzystane możliwości leczenia farmakologicznego.

Cel: Celem pracy było opisanie farmakoterapii pacjentów z chorobą niedokrwienną serca (CAD) kierowanych na CABG w funkcji czasu poprzez wyznaczenie zmian częstości stosowania kwasu acetylosalicylowego (ASA), β -adrenolityków, inhibitorów konwertazy angiotensyny (ACEI), statyn i sartanów w codziennej praktyce lekarskiej, w porównaniu z wytycznymi towarzystw naukowych dotyczących osób poddawanych CABG w kolejnych 5 latach (2004–2008).

Metody: Badanie skonstruowano jako retrospektywne, przekrojowe, obejmujące wszystkich pacjentów leczonych w jednostkach I Katedry Kardiologii Warszawskiego Uniwersytetu Medycznego (WUM) w Centralnym Szpitalu Klinicznym w Warszawie w latach 2004–2008 (łącznie 2827 chorych). Do badania włączono ostatecznie 1253 osób przyjętych z powodu CAD, którzy spełniali kryteria: CABG wykonane techniką bez krążenia pozaustrojowego, z dostępu przez sternotomię pośrodkową, operatorem był ten sam kardiochirurg. Kryteriami wykluczającymi z badania były: konieczność rozszerzenia zakresu operacji o dodatkowe procedury kardiochirurgiczne, konwersja z zabiegu bez zastosowania krążenia pozaustrojowego do zabiegu w krążeniu pozaustrojowym, zabieg wykonywany przez innego kardiochirurga. Analizę statystyczną przeprowadzono na podstawie danych mierzalnych i niemierzalnych w analizowanych podgrupach. Farmakoterapię oceniano w dwóch okresach okołoperacyjnych: w dniu przyjęcia i w dniu wypisania ze szpitala.

Wyniki: Przed zabiegiem operacyjnym β -adrenolityki otrzymało 89,78% chorych, ACEI — 81,56%, statyny — 88,27%, a sartany — 3,19%. Po CABG 94,48% pacjentów otrzymało ASA, 96,04% — β -adrenolityki, 85,16% — ACEI, 92,09% — statyny, a 2,14% — sartany. W trakcie analizowanych lat stwierdzono trend do rzadszego hospitalizowania pacjentów, którzy otrzymali w okresie przedoperacyjnym: β -adrenolityki ($p < 0,001$), ACEI ($p < 0,001$) i statyny ($p < 0,001$). Jednocześnie wykazano, że sartany były coraz częściej zalecaną grupą leków ($p < 0,01$). W dniu wypisania ze szpitala również stwierdzono coraz rzadszą tendencję do przepisywania β -adrenolityków ($p < 0,05$), ACEI ($p < 0,001$) i statyn ($p < 0,001$).

Wnioski: Możliwości farmakoterapii CAD w okresie przed- i pooperacyjnym nie były w pełni wykorzystane. Stwierdza się pozytywne zmiany w porównaniu z wynikami raportów pochodzących z innych krajów.

Słowa kluczowe: pomostowanie aortalno-wieńcowe, choroba niedokrwienna serca, farmakoterapia, epidemiologia

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