Abstracts of original contributions

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1-P

New-generation drug eluting stent vs. bare metal stent in saphenous vein graft – 1 year outcomes by a propensity score ascertainment (SVG Baltic Registry)

Wojciech Wańha[1,2], Tomasz Roleder[1], Maksymilan Mielczarek[3], Szymon Ładziński[1], Marek Milewski[1], Michał Chmielecki[3], Natasza Gilis-Malinowska[3], Dariusz Ciećwierz[3], Witold Bachorski[3], Piotr Kunik[1], Agata Trznadel[1], Alicja Genc[3], Rafał Januszek[4], Artur Dziewierz[4], Stanisław Bartuś[4], Marcin Gruchała[3], Grzegorz Smolka[1], Dariusz Dudek[4], Eliano Pio Navarese[2,5,6,7], Andrzej Ochała[1], Miłosz Jaguszewski[3], Wojciech Wojakowski[1]

[1]Department of Cardiology and Structural Heart Diseases, Medical University of Silesia, Katowice, Poland
[2]SIRIO MEDICINE research network
[3]First Department of Cardiology, Medical University of Gdansk, Gdansk, Poland
[4]Second Department of Cardiology, Jagiellonian University Medical College, Krakow, Poland
[5]Cardiovascular Institute, Nicolaus Copernicus University, Bydgoszcz, Poland
[6]Interventional Cardiology and Cardiovascular Medicine Research, Mater Dei Hospital, Bari, Italy
[7]Department of Cardiovascular Medicine, University of Alberta, Edmonton, Canada

Background: Data regarding the efficacy of percutaneous coronary intervention (PCI) with new-designed drug eluting stent (new-DES) vs. bare metal stent (BMS) of saphenous vein grafts (SVG) stenosis is scarce. The primary objective was to compare 1-year clinical outcomes of PCI in stenosis of SVG using new-DES vs. BMS in a real-world population.

Methods: We carried out a multi-center registry comparing new-DES with BMS in all consecutive patients undergoing PCI of SVG. The primary composite endpoint was major adverse cardiac and cerebrovascular events (MACCE) at 1 year. This observation included 792 consecutive patients (mean age: 69 ±8.9 years), treated with either new-DES ($n = 379$, 47.9%) or BMS ($n = 413$, 52.1%).

Results: In unmatched cohort patients treated with new-DES vs. BMS had lower MACCE (28.3% vs. 21.4%, HR = 0.69, 95% CI: 0.50–0.95, $p = 0.025$) as well as myocardial infarctions (MI) (12.1% vs. 6.3%; HR = 0.49, 95% CI: 0.30–0.82, $p = 0.005$) at 1 year. After propensity score matching similar, significant reduction in MACCE and MI was sustained in new-DES vs. BMS groups (HR = 0.66, 95% CI: 0.46–0.96, $p = 0.030$; and HR = 0.53, 95% CI: 0.31–0.92, $p = 0.020$, respectively).

Conclusions: In patients undergoing PCI of SVG, the use of new-DES is associated with a reduced 1-year rate of MACCE and MI compared to BMS.

2-P

Bioresorbable polymer-coated thin strut sirolimus-eluting stent vs. durable polymer-coated everolimus-eluting stent in daily clinical practice: three-year follow-up data from interventional cardiology network registry

Pawel Gasior[1], Marek Gierlotka[2], Krzysztof Szczurek-Katanski[3], Marcin Osuch[3], Michał Hawranek[4], Mariusz Gasior[4], Lech Polonski[4]

[1]Department of Cardiology and Structural Heart Diseases, Medical University of Silesia, Katowice, Poland
[2]Department of Cardiology, University Hospital, Faculty of Natural Sciences and Technology, University of Opole, Opole, Poland
[3]Third Department of Cardiology, School of Medicine with the Division of Dentistry in Zabrze, Medical University of Silesia, Katowice, Poland
[4]SCANMED, Gliwice, Poland

Background: Presence of durable polymers may be associated with late/very late stent thrombosis occurrence and the need for prolonged dual antiplatelet therapy. Bioresorbable polymers may facilitate stent healing, thus enhancing clinical safety.

Aim: We sought to determine the 3-year clinical follow-up in patients treated with the thin strut (71 μm) bioabsorbable polymer-coated sirolimus-eluting (BP-SES) stent versus durable coating everolimus eluting stent (DP-EES) in daily clinical routine.

Methods: Interventional Cardiology Network Registry is a multicenter, all-comers registry of 21.400 patients treated with PCI between 2010 and 2016. All patients who underwent implantation of either ALEX ($n = 287$) or XIENCE ($n = 1114$) stents within a time frame of availability of 3-year clinical follow-up were included. We evaluated the incidence of all-cause deaths at 3-year follow-up and a composite endpoint of death or myocardial infarction.

Results: There was no significant differences between the groups in procedure related complications and in-hospital mortality (ALEX 1.8% vs. XIENCE 1.0%, $p = 0.22$). Follow-up demonstrated similar 3-year all-cause mortality (ALEX 12.0% vs. XIENCE 11.9%, $p = 0.99$), as well as comparable incidence of composite endpoint in ALEX group when compared to XIENCE (19.9% vs. 20.0%, $p = 0.98$, respectively).

Conclusions: In this multicenter registry, ALEX stent demonstrated comparable clinical outcomes at 3 years

after implantation to the XIENCE stent. These data support the relative long-term safety and efficacy of ALEX in a broad range of patients undergoing percutaneous coronary interventions.

3-P

Peri-strut low intensity areas and vascular healing response after everolimus-eluting bioresorbable scaffold implantation in acute ST-segment elevation myocardial infarction. Insight from optical coherence tomography

Dorota Ochijewicz[1], Mariusz Tomaniak[1], Lukasz Kołtowski[1], Adam Rdzanek[1], Arkadiusz Pietrasik[1], Jacek Jakala[2], Jacek Legutko[3], Zenon Huczek[1], Krzysztof Filipiak[1], Grzegorz Opolski[1], Janusz Kochman[1]

[1]First Department of Cardiology, Medical University of Warsaw, Warsaw, Poland
[2]KCRI, Krakow, Poland
[3]Department of Interventional Cardiology, Jagiellonian University Medical College, Krakow, Poland

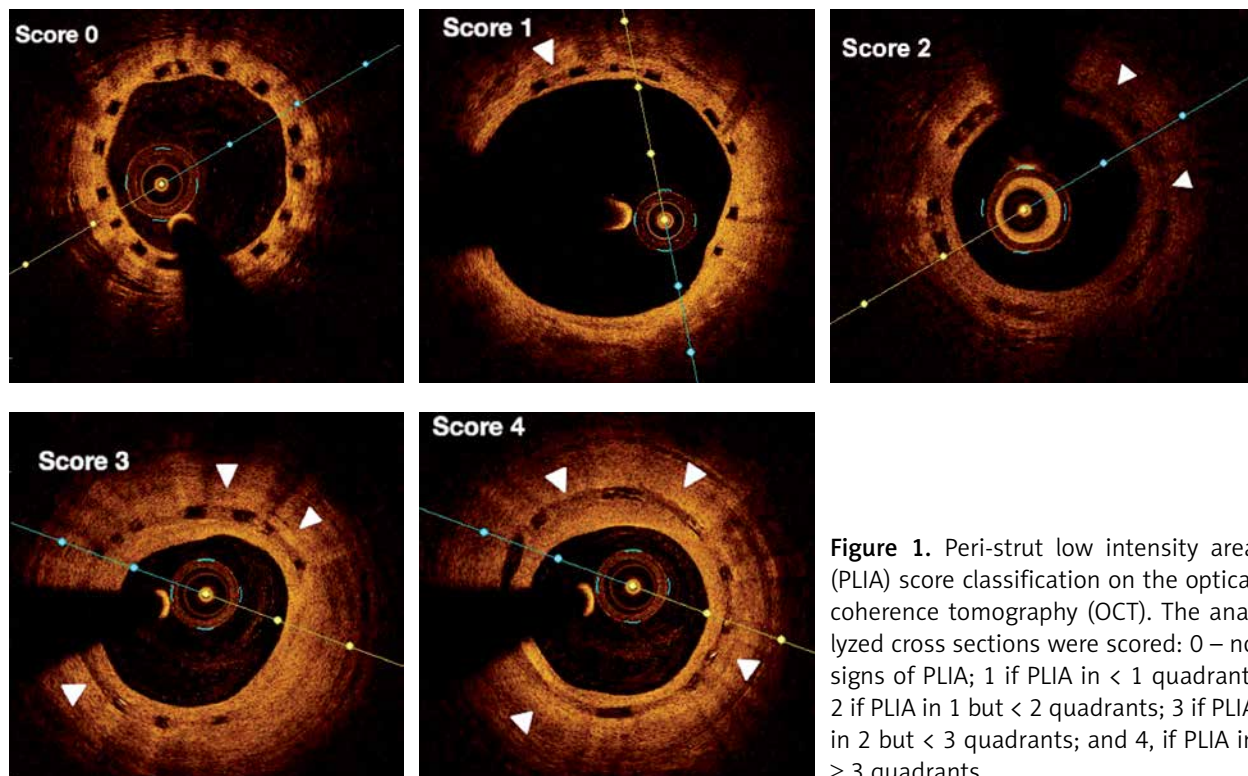**Background:** Peri-strut low intensity areas (PLIA) surrounding metallic stents struts, visualized by optical coherence tomography (OCT) images, have been related to inflammation, neointimal proliferation and increased incidence of target lesion revascularization.

Aim: To determine the association between PLIA by OCT and the vascular healing response after bioresorbable scaffold (BRS) implantation in the setting of acute myocardial infarction (MI).

Methods: This is a single-centre, longitudinal study with a serial: baseline, 12- and 24-month OCT evaluation of neointimal response after percutaneous coronary intervention (PCI) with BRS implantation in patients presenting with ST-segment elevation MI (STEMI). Neointimal thickness and area were evaluated in relation to the presence of PLIA by OCT. Every analyzed cross section was scored: 0 – no PLIA; 1 – PLIA in < 1 quadrant; 2 – PLIA in 1 but < 2 quadrants; 3 – PLIA in 2 but < 3 quadrants; 4 – PLIA in ≥ 3 quadrants. A total of 18 STEMI patients treated with 20 AbsorbBRS implantation were included.

Results: The presence of PLIA within the scaffolds was identified in 55%. The significant positive correlation was found between PLIA score and the mean ($r = 0.406$; $p = 0.038$), maximal ($r = 0.421$; $p = 0.032$) and minimal neointimal thickness ($r = 0.426$; $p = 0.03$), but not with neointimal area ($r = -0.091$; $p = 0.352$) after 24 months. No difference was observed between the PLIA positive and negative group in terms of the neointimal thickness and area.

Conclusion: In STEMI patients treated with BRS implantation, presence and extent of PLIA by OCT may be associated with the pattern of neointimal formation. This

Figure 1. Peri-strut low intensity area (PLIA) score classification on the optical coherence tomography (OCT). The analyzed cross sections were scored: 0 – no signs of PLIA; 1 if PLIA in < 1 quadrant; 2 if PLIA in 1 but < 2 quadrants; 3 if PLIA in 2 but < 3 quadrants; and 4, if PLIA in ≥ 3 quadrants

surrogate parameter may serve as a tool for evaluation of in-scaffold neointimal growth after future generation BRS implantation.

Safety and efficacy of bioresorbable polymer-coated thin strut sirolimus-eluting stent vs. durable polymer-coated everolimus-eluting stent in patients with acute myocardial infarction

Pawel Gasior[1], Marek Gierlotka[2,3], Krzysztof Szczurek-Katanski[4], Marcin Osuch[4], Magda Roleder[1], Michał Hawranek[2], Mariusz Gasior[2], Lech Polonski[2]

[1]Department of Cardiology and Structural Heart Diseases, Medical University of Silesia, Katowice, Poland
[2]Third Department of Cardiology, School of Medicine with the Division of Dentistry in Zabrze, Medical University of Silesia, Katowice, Silesian Centre for Heart Diseases, Zabrze, Poland
[3]Department of Cardiology, University Hospital, Faculty of Natural Sciences and Technology, University of Opole, Opole, Poland
[4]SCANMED, Krakow, Poland

Background: The biodegradable polymer drug-eluting stents were developed to improve vascular healing. However, further data is needed to confirm the safety and efficacy of these stents in patients with acute myocardial infarction (AMI).

Aim: We sought to determine the 1-year clinical follow-up in patients with AMI treated with the thin strut biodegradable polymer-coated sirolimus-eluting (BP-SES) stent versus durable coating everolimus-eluting stent (DP-EES).

Methods: We analyzed patients with AMI (STEMI and NSTEMI) treated with either a BP-SES (ALEX™, Balton, Poland, $n = 886$) or DP-EES (XIENCE™, Abbott, USA, $n = 1054$) with available 1-year clinical follow-up using propensity-score matching. Outcomes included target vessel revascularization (TVR) as efficacy outcome and all-cause death, myocardial infarction, and definite/probable stent thrombosis as safety outcomes.

Results: After propensity score matching 672 patients treated with BP-SES and 672 patients treated with DP-EES were selected. Procedural and clinical characteristics were similar between both groups. In-hospital mortality was similar in both tested groups. One-year follow-up demonstrated comparable efficacy outcome TVR (BP-SES 7.1% vs. DP-EES 5.2%, $p = 0.14$), as well as similar safety outcomes of all-cause death, myocardial infarction, and definite/probable stent thrombosis.

Conclusions: The thin-strut biodegradable polymer coated sirolimus-eluting stent demonstrated comparable clinical outcomes at 1-year after implantation to the DP-EES. These data support the relative safety and efficacy of BP-SES in high-risk ACS patients undergoing PCI.

Long-term clinical outcomes and their predictors in patients after myocardial infarction with non-obstructive coronary arteries – gender differences

Magdalena Jędrychowska[1], Rafał Januszek[1], Krzysztof Plens[2], Andrzej Surdacki[3], Stanisław Bartuś[1,3], Dariusz Dudek[1,3,4]

[1]Second Department of Cardiology and Cardiovascular Interventions, University Hospital, Krakow, Poland
[2]KCRI, Krakow, Poland
[3]Second Department of Cardiology, Jagiellonian University Medical College, Krakow, Poland
[4]Department of Interventional Cardiology, Jagiellonian University Medical College, Krakow, Poland

Background: Myocardial infarction with non-obstructive coronary arteries (MINOCA) remains still challenging mainly due to its complex and multiple etiology.

Aim: To assess the relationship between gender and clinical outcomes during follow-up in patients after MINOCA and predictors of main adverse cardiac and cerebrovascular adverse events (MACCE).

Methods: The study consisted of 134 patients (78 females, 58.2%) at the mean age of 61.6 years who were diagnosed with MINOCA in our department of cardiology within the period from January 2015 to June 2018. The subjects were included in the average follow-up period lasting 609.5 days. The primary study endpoints were MACCE, which included death, myocardial infarction, re-intervention and cerebral stroke. The evaluated secondary study endpoints were recurrent chest pains in the follow-up period and rehospitalization for reasons other than MACCE. Additionally, we assessed predictors of primary and secondary study endpoints.

Results: The MINOCA frequency is presented in Figure 1. Kaplan Meier survival curve analysis did not reveal statistically significant differences in the frequency of MACCE ($p = 0.63$) or mortality rate ($p = 0.29$) between males and females during follow-up period. There was no statistically significant impact of gender on secondary study endpoints during the follow-up. Univariate and multivariate analysis of predictors of primary and secondary study endpoints has not included gender among other confirmed predictors of clinical outcomes during follow-up in patients after MINOCA.
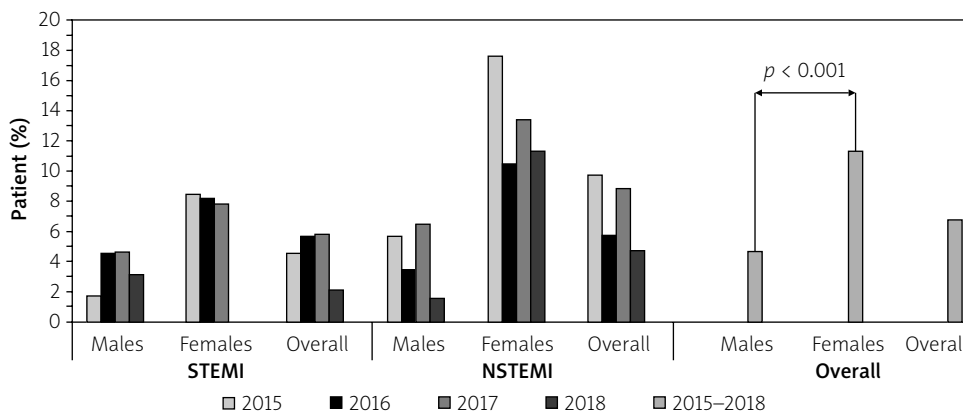
Figure 1. MINOCA frequency stratified by sex and year of enrollment

Conclusions: Despite a number of clinical differences and comorbid diseases between genders in patients after MINOCA, gender was not found to be significantly associated with clinical outcomes during the follow-up.

6-P

Cognitive frailty in elderly patients with acute coronary syndrome

Magdalena Lisiak, Izabella Uchmanowicz

Department of Clinical Nursing, Wroclaw Medical University, Wroclaw, Poland

Background: Frailty syndrome (FS) is an exponent of advanced biological age and an important risk factor for the development of adverse outcomes. The multi-factor cascade of the change process should be considered in the context of both biological and psychological as well as socio-environmental factors. In connection with the above, it is indicated increasingly the importance of a new phenomenon which is cognitive impairment (CI) associated with co-existing FS, so-called cognitive frailty (CF). The heterogeneity of FS and CI is one of the risk factors for cardiovascular events. This can be extremely important in elderly patients with the acute coronary syndrome (ACS) because patients with CF may not meet the therapeutic goals.

Aim: To describe the association between FS and CI in elderly patients with ACS.

Methods: This prospective observational study included one-hundred patients aged 65 or older hospitalized for ACS. Frailty was assessed using the Tilburg Frailty Indicator (TFI). The Mini-Mental State Examination (MMSE) was used for cognitive function evaluation (study results are presented in Tables I-IV).

Table I. Characteristics of participants

Mean (SD)	Median (min.-max.)	P-value
76.08 (8.24)	77 (68–84)	0.004

Mean age of women = 78.43 years old, mean age of men = 73.87 years old.

Table II. Results of the TFI questionnaire

TFI	Women (n = 48)		Men (n = 52)		All (n = 100)		P-value
	n	%	n	%	n	%	
Frail	36	73.47	24	46.15	60	60.00	0.01
No frail	12	25.00	28	53.85	40	40.00	

The mean total TFI score = 6.98.

Table III. Cognitive impairment in patients with frailty syndrome

FS	CI (n = 40)		No CI (n = 60)		P-value
	n	%	n	%	
Frail	36	90.00	24	40.00	< 0.001
No frail	4	10.00	36	60.00	

Females 50% > Males 30%.

Table IV. Domain of the TFI questionnaire in patients with cognitive impairment

Domain	CI	N	Mean	SD	Median	Min.	Max.	Q1	Q3	P-value*
Physical	+	40	6.17	1.52	6	2	8	5.75	7	< 0.001
	–	60	3.48	2.08	3	0	8	2	5	
Psychological	+	40	2	0.93	2	0	3	1	3	0.001
	–	60	1.28	0.98	1	0	3	1	2	
Social	+	40	0.92	0.86	1	0	3	0	1	0.655
	–	60	0.8	0.68	1	0	2	0	1	

Conclusions: Cognitive frailty occurred in the studied population of patients with ACS. There is a negative relationship between the presence of FS (especially in the physical and psychological domain of the TFI) and CI. It is worth mentioning that there is still a lack of sufficient studies on the cognitive frailty in patients with ACS. The obtained results may be helpful in optimizing the care plans and implementing interventions to improve physical and psychological functioning in patients with co-existing cognitive frailty.

Conclusions: To our knowledge, this is the first study investigating the relationship between Pfn 1 and symptom duration in both STEMI and NSTEMI patients. We have shown that Pfn 1 concentration in peripheral blood is inversely proportional to symptom duration, probably due to release from activated platelets during intracoronary thrombus formation. Pfn 1 may be an objective indicator of the symptom duration in MI, and as such could be a a valuable tool in decision-making and prognostic assessment.

7-P

Profilin 1 concentration is a marker of symptom duration in myocardial infarction

Elżbieta Paszek[1], Wojciech Zajdel[1], Krzysztof Plens[2], Jacek Legutko[1], Krzysztof Żmudka[1]

[1]Clinical Department of Interventional Cardiology, Jagiellonian University Medical College, John Paul II Hospital, Krakow, Poland
[2]KCRI, Krakow, Poland

Background: Profilin 1 (Pfn 1) is a small protein crucial in the regulation of actin cytoskeleton. Several studies show it may play a role in gene expression and intracellular communication, being released from platelets and possibly other cells (endothelium, leukocytes). An increasing amount of data suggests Pfn 1 is a key player in the pathogenesis of stable angina and acute coronary syndrome. A basic factor influencing the treatment and prognosis of patients with type 1 myocardial infarction (t1MI) is the duration of symptoms of ischemia. In everyday clinical practice, it is often difficult to determine this parameter, due to a number of patient-related factors (e.g. unclear symptom onset, stress, etc). Therefore, it is reasonable to search for a laboratory indicator of symptom duration.

Methods: 65 patients with t1MI (STEMI or NSTEMI) treated with pPCI were enrolled in the study. The exclusion criteria were: inability to define the time of symptom onset; symptom duration > 24 h; s/p CABG; active inflammation; any thrombosis, stroke or MI within the last 3 months; neoplasms; hypercoagulability; stage 4 or 5 chronic kidney disease. Pfn 1 concentration in peripheral blood was assessed using an enzyme-linked immunosorbent assay (ELISA) in three time points: on admission, 24 and 48 h post pPCI.

Results: We found a negative correlation between symptom duration and Pfn 1 concentration on admission (Spearman $R = -0.42$, $p = 0.008$), 24 h post pPCI (Spearman $R = -0.30$, $p = 0.022$) and 48 h post pPCI (Spearman $R = -0.28$, $p = 0.033$). Patients presenting with symptoms lasting less than 6 h had a significantly higher concentration of Pfn 1 than those with symptoms lasting longer than 6 h (838.54 vs. 687.12, $p = 0.007$).

8-P

Atherosclerotic plaque burden distribution in coronary arteries among patients with valvular heart disease

Łukasz Kuźma[1], Marcin Kożuch[1], Paweł Kralisz[1], Konrad Nowak[1], Szymon Pogorzelski[1], Magdalena Róg-Makal[1], Krzysztof Struniawski[1], Hanna Bachórzewska-Gajewska[1,2], Sławomir Dobrzycki[1]

[1]Department of Invasive Cardiology, Medical University of Bialystok, Bialystok, Poland
[2]Department of Clinical Medicine, Medical University of Bialystok, Bialystok, Poland

Background: Epidemiology of valvular hearth defects has changed in recent years. Aging of the population has contributed to the increase of the percentage of both, degenerative defect and coronary heart disease. Due to the lack of current data on coronary artery disease among patients with valvular diseases in Podlaskie region this study gathers information about this group of patients.

Aim: The analysis of the atherosclerotic plaque burden distribution in the coronary arteries and long term prognosis among patients with valvular heart disease.

Methods: Retrospective analysis considered medical documentation of 12954 patients hospitalized in the Department of Invasive Cardiology of the Medical University of Bialystok. Follow-up of total morality was done after the average of 1500 days.

Results: Valvular heart disease was diagnosed in 1214 patients, among whom 843 subjects had coronary artery disease. Mitral regurgitation was the most common valvular defect, which, at different severity grading, occurred at 50% of the studied population ($n = 607$). The most common severe valvular heart defect was aortic valve stenosis, which affected 23% of patients ($n = 279$). Combined valvular heart disease occurred in 44.7% patients ($n = 543$), of which 29.5% ($n = 358$) had a disease of more than one valve.

Significant coronary artery narrowings were diagnosed in 524 patients. Angiographicaly significant stenoses were mostly reported in LAD (25.25%, $n = 303$), Cx, (23.91%, $n = 287$) and RCA (23.66%, $n = 284$). There were

236 percutaneous coronary interventions (19,6%), with the prevailing PCI of Cx (n = 139) and LAD (n = 93). The operation due to valvular heart defects was performed in 47.98% patients, and 41.06% of those underwent coronary artery bypass surgery. Significant stenosis of the right coronary artery was more frequently diagnosed among patients who died (21.77% vs. 31.38%, $p < 0.001$). Subjects with severe mitral valve insufficiency more often presented with the diagonal artery stenosis.

Conlcusions: The most common defect in the analysed population was mitral regurgitation of all grading severity. Aortic valve stenosis was the most severe valvular heart defect and presented with significantly worse prognosis comparing to other heart diseases despite lower risk of death. Coronary artery disease was an additional factor worsening the prognosis of patients with heart defects. More than 50% of patients underwent coronary revascularization. Significant stenosis of diagonal artery more frequently occurred in mitral insufficiency, and significant stenosis of right coronary artery worsened the prognosis. During 8-year follow-up 19.7% of subjects died.

9-P

The truth about the saying – if you want to treat, use intravascular ultrasound. If you don't, use fractional flow reserve

Łukasz Kalińczuk[1], Michał Proczka[1], Kamil Zieliński[1], Gary S. Mintz[2], Mariusz Dębski[1], Michał Gwidon Markiewicz[1], Bartek Sieradzki[1], Jerzy Pręgowski[1], Artur Dębski[1], Hubert Łazarczyk[1], Michał Ciszewski[1], Zbigniew Chmielak[1], Zofia Dzielińska[1], Marcin Demkow[1], Adam Witkowski[1]

[1]Institute of Cardiology, Warsaw, Poland
[2]Cardiovascular Research Foundation, NY, USA

Background: Both IVUS and FFR are been used to assess the clinical importance of a borderline coronary lesion. It has been suggested that more lesions are significant when assessed using IVUS than when using FFR.

Methods: Consecutive pts with borderline, de novo coronary lesions (%DS ≥ 40%, but < 70%) from the ANIN IVUS & FFR registries were analyzed. Cut-off values of significance were an IVUS minimum lumen area (MLA) < 3.0 mm^2 and minFFR < 0.8.

Results: Between 1/2009 to 12/2016 there were 1225 patients with 1547 borderline lesions (880 IVUS; 667 FFR). IVUS was almost exclusively preferred for left main (LM) lesions ($p < 0.001$); but other coronaries were examined with both techniques equally (Figure 1). After exclusion of 408 pts with LM lesions, those examined
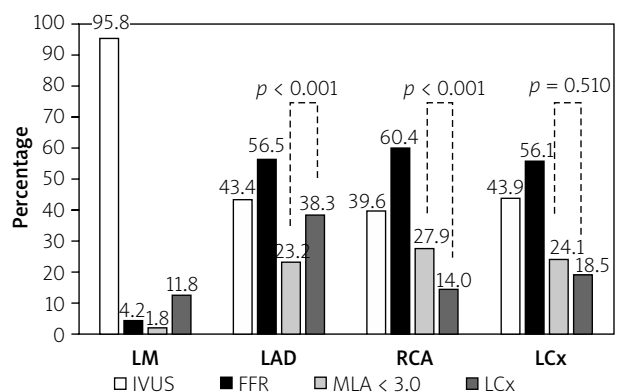
Figure 1. Distribution of IVUS, FFR, MLA < 3.0 mm^2 and FFR < 0.8 among the coronary arteries

with FFR were significantly older, had more hypertension and hyperlipidemia, but had less previous PCI. Mean MLA was 4.2 ±1.8 mm^2, and mean minFFR was 0.83 ±0.09. Overall, 31.8% of LAD lesions were significant because of an IVUS MLA < 3.0 mm^2 or an minFFR < 0.8 vs. 19.5% in RCA and 21.2% in LCx ($p = 0.001$). More lesions were significant by FFR vs. IVUS (32.6% vs. 23.9%; $p = 0.002$), especially in the LAD; whereas RCA lesions were considered significant more frequently by IVUS, and LCx lesions were significant with similar frequency by both techniques (Figure 1).

Conclusions: The saying "If you want to treat, use IVUS. If you don't, use FFR" is clinically untrue using contemporary criteria, especially when recognizing specific vessel differences. Use of IVUS for borderline verification does not lead to more intervention as compared to FFR assessment.

10-P

A comparison of cardiovascular magnetic resonance and single-photon emission computed tomography for induced ischemia detection in a real-life clinical practice

Kamil Zieliński[1], Łukasz Kalińczuk[1], Michał Proczka[1], Mateusz Śpiewak[1], Gary S. Mintz[2], Piotr Trochimiuk[1], Hubert Łazarczyk[1], Barbara Miłosz[1], Łukasz Mazurkiewicz[1], Jerzy Pręgowski[1], Adam Trzciński[1], Anna Teresińska[1], Magdalena Marczak[1], Zofia Dzielińska[1], Marcin Demkow[1]

[1]Department of Coronary and Structural Heart Diseases, Institute of Cardiology, Warsaw, Poland
[2]Cardiovascular Research Foundation, NY, USA

Background: Stress perfusion CMR or SPECT are used for assessment of myocardial ischemia.
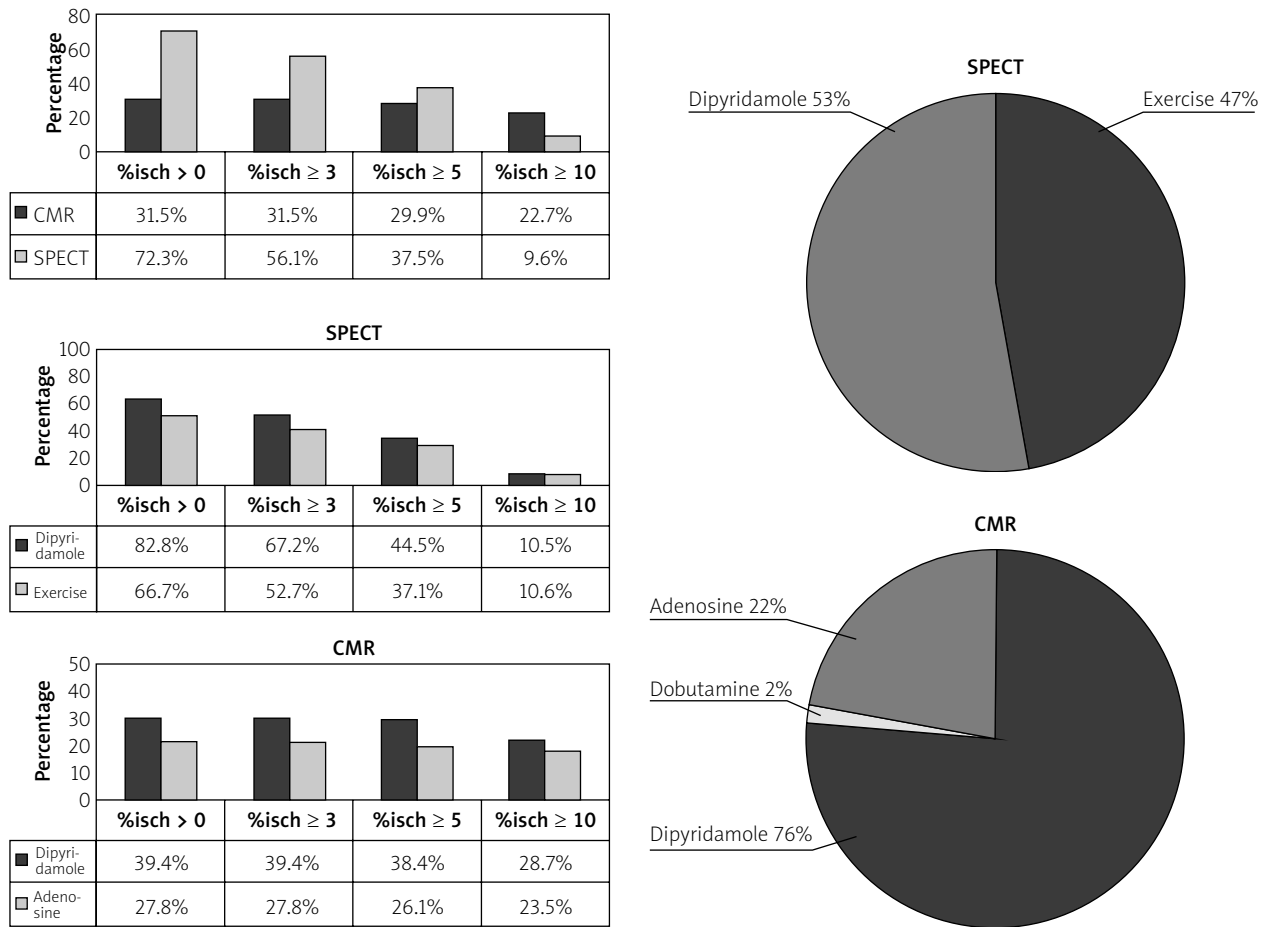
Figure 1. Distribution of the ischemia burden categorized with various cut-offs and assessed with different imaging modalities

Methods: Consecutive pts in whom induced ischemia (expressed as a % of left ventricular (LV) mass) was established using SPECT (SYMBIA INTEVO EXCEL) or MR (1.5T scanner, Philips Gyro-Scan NT) with different methods of inducing stress were analyzed and compared.

Results: From 2013 to 2017, 696 patients (65.2 years; 29.0% males) were studied with CMR; from 2016 to 2017, 690 patients (66.5 years; 31.0% males) were studied with SPECT. Ischemia of any level was more frequently identified using SPECT vs. CMR (72.3% vs. 31.5%; $p < 0.001$). However, total ischemia burden was greater with CMR vs. SPECT (10% (9% to 15%) vs. 5% (3% to 6%); $p < 0.001$). Also, $\geq 10\%$ ischemia was identified more frequently with CMR vs. SPECT (22.7% vs. 9.6%; $p < 0.001$) and more frequently with dipyridamole ($p = 0.028$, Figure 1). Comparing patients with inducible ischemia by SPECT vs. CMR, there were more patients with a history of chronic renal disease (14.9% vs. 8.2%, $p = 0.004$) and CABG (22.7% vs. 15.7%, $p = 0.05$), but less MI (43.9% vs. 53.6%, $p = 0.033$). There was no difference in hypertension, dyslipidemia, or diabetes. Patients with induced ischemia $\geq 10\%$ were less often ≥ 65 years of age (51.3% vs. 61.8%, $p = 0.048$), but more often had dia-

betes (32.5% vs. 25.2%, $p = 0.04$) or an MI history (55.3% vs. 41.1%, $p < 0.001$).

Conclusions: SPECT is more sensitive in detecting any amount of ischemia, but CMR is more accurate in detecting pts with $\geq 10\%$ LV involvement who have a worse prognosis. CMR identifies more often pts with ischemia involving more than 10% of LV mass while SPECT is a more sensitive technique for detecting the presence of ischemia.

11-P

Inaccurate visual resolution of a contemporary digital angiographs with matrix size of 1024 × 1024 pixels in an evaluation of a left main coronary lesions

Michał Proczka[1], Łukasz Kalińczuk[1], Kamil Zieliński[1], Gary S. Mintz[2], Rafał Wolny[1], Adam Trzciński[1], Jerzy Pręgowski[1], Paweł Tyczyński[1], Mariusz Dębski[1], Hubert Łazarczyk[1], Michał Ciszewski[1], Zofia Dzielińska[1], Adam Witkowski[1], Marcin Demkow[1]

[1]Department of Coronary and Structural Heart Diseases, Institute of Cardiology, Warsaw, Poland
[2]Cardiovascular Research Foundation, NY, USA

Background: Even after all the workshop conditions of optimum angiography are fulfilled and even when working with high-resolution angiographic equipment, > 40% of borderline LM lesions have an inconclusive assessment.

Methods: In 2 orthogonal views (LAO vs. RAO) lumen diameters were measured among borderline LM lesions visualized at 15 f/s with the Siemens™ AXIOM (1024 × 1024 flat panel detector). Identified were the 3 frames within the narrowest region of LM lumenogram (1 back & 1 forward, counting from the one judged as the narrowest). Then, 3 independent measurements were made: minimal lumen diameter (3× MLD) and proximal & distal reference diameters (prox & dist ref diam, 3× each). Measurements were done with image enlarged by a factor of 2, using a dedicated digital caliper (plotting lines from a single pixel to a single pixel to the nearest

2 decimal places). Measurements and %DS (100% − MLD/mean ref diam) were categorized for their minimal and maximal values.

Results: Among the 32 consecutive patients (67 ±8 years, 53% males), 1567 diameters were measured. Absolute variations in min vs. max measured diameters as displayed on Figure 1. In a per patient analysis relative variations in measured diameters for prox ref, MLD and dist ref led to variations in min vs max %DS in LAO and RAO views of 30 ±14% vs. 49 ±14% ($p < 0.001$) and 32 ±17% vs. 55 ±13% ($p < 0.001$), respectively.

Conclusions: Even using contemporary coronary angiographic equipment, assessment of LM stenosis severity (as well as LM reference lumen size) is highly variable. The inherent limitations of angiography lead to inconsistency in LM stenosis severity assessment.

12-P

# Automated ECG and acoustic signal based diagnosis of sleep disorders

Klaudia Proniewska[1], Agnieszka Pregowska[2], Peter van Dam[3], Janusz Szczepanski[2]

[1]Jagiellonian University Medical College, Krakow, Poland
[2]Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland
[3]PEACS BV, Nieuwerbrug, The Netherlands

Background: In primary care, 10–20% of people complain of significant sleep problems, with nearly 100 identified types of sleep disorders. A number of factors lead to under-detection of sleep deprivations. Its effective diagnosis is important to receive the correct treatment.
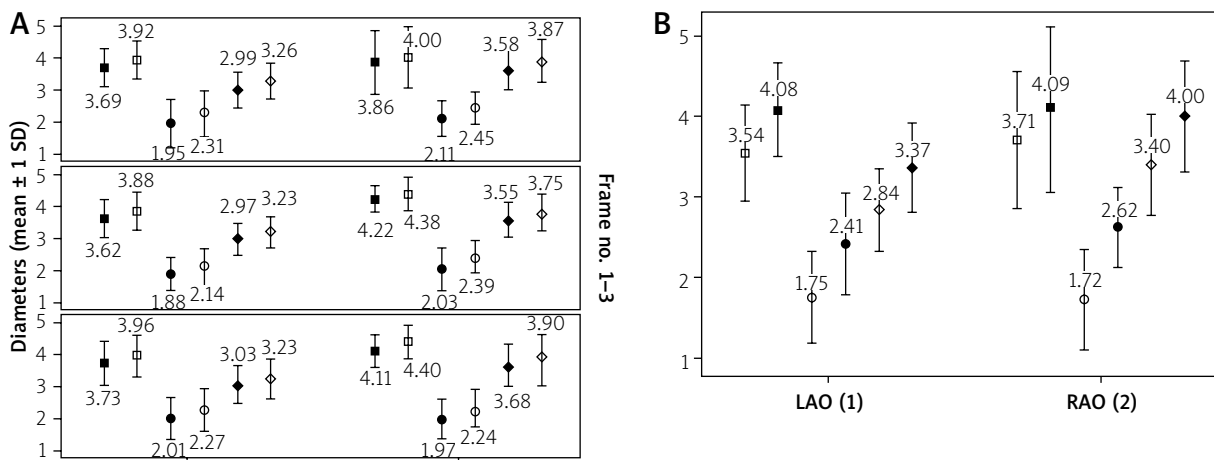
Figure 1. Variations in measured minimal (solid) vs. maximal (transparent) diameters at the sites of: prox ref (□), MLD (○) and dist ref (◇) (on a per frame (**A**) & per patient basis (**B**)) ($p < 0.001$ for all corresponding comparisons of min vs. max)
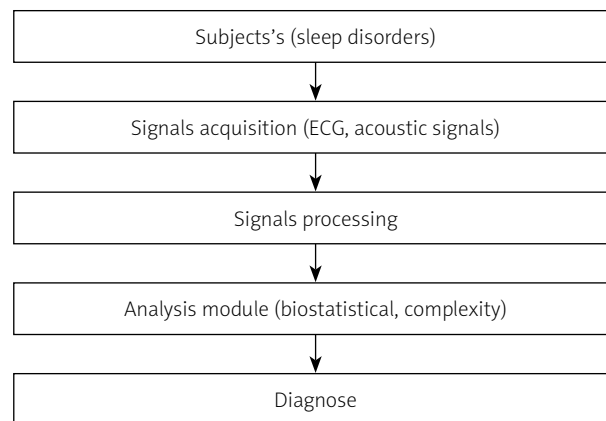
Figure 1. Block diagram summarizing the steps followed in this study, from signal recording to the biostatistical and Information Theory based analysis

Aim: To proposed original concept of the infrastructure of the home-care system for sleep identification and sleep event scoring (Figure 1).

Methods: This study includes some preliminary results toward ECG-based diagnosis of sleep disorders. Sleep deprivation detection problem is modeled as a two-group classification problem. The two subject groups are: healthy individuals and Sleep Related Breathing Disorders (SRBD) positives (12 subjects). Parameters derived from ECG and acoustic analysis were considered as input for the predictive statistical models used to find the best possible classification of sleep disorders. Moreover, as an alternative to statistical analysis Lempel-Ziv Complexity (LZC) algorithm as detection tool of sleep deprivation via ECG was applied.

Results: Our results show that the best events recognition is reached for over 89% (raw database) and for over 92% (up-sampled database) good predictions. It turned also out, that the SRBD patients have more regular ECGs, which are characterized by LZC around 0.32, while control group has the complexity around 0.85 and variability of patterns is much larger.

Conclusions: Proposed diagnostic method, which links biostatistics with Information Theory approach, is a powerful tool for the classification of sleep disorders, even in the early stage. It provides also inspiring insight into developing effective algorithms of telemedical data interpretation.

Antihypertensive therapy in adults with coarctation of the aorta: a single-center experience

Jan Henzel[1], Sebastian Bujak[1], Tomasz Moszura[2], Karolina Kryczka[1], Edyta Kaczmarska-Dyrda[1], Beata Broy-Jasik[3], Andrzej Kurowski[3], Zofia Dzielińska[1], Marcin Demkow[1]

[1]Department of Coronary Artery and Structural Heart Diseases, Institute of Cardiology, Warsaw, Poland
[2]Department of Cardiology, Polish Mother's Memorial Hospital Research Institute, Lodz, Poland
[3]Department of Anesthesiology, Institute of Cardiology, Warsaw, Poland

Background: Coarctation of the aorta (CoA) is a common cause of secondary arterial hypertension (HTA).

Aim: To analyze the diagnostic route and medical therapy of HTA in a series of adults undergoing endovascular stenting of CoA.

Methods: Twenty-four consecutive adults (median age: 36 years, 15 men) were enrolled. Clinical history was collected at baseline, wherein special attention was paid to the time period between onset of HTA and diagnosis of CoA. Patients were contacted by phone after 34 ±17 months to follow up medical treatment.

Results: The mean age at detection of HTA was 17.1 ±8.8 years (range: 1–36 years), while the mean age at diagnosis of CoA was 33.5 ±14.9 years (range: 1–77). The mean delay in diagnosis was 16.4 ±11.1 years (maximally 37). All patients underwent successful CoA stenting with excellent trans-coarctation gradient reduction (40.1 ±15.9 before the procedure vs. 1.3 ±2.2 mm Hg after the procedure; $p < 0.001$; 95% CI: 32.1–45.4). No early complications were observed; in 1 case redo intervention was performed due to aortic aneurysm formation. Overall, 95.8% of pa-

Table I. Detailed characteristics of the patients enrolled

Patient	Sex	Age at the intervention [years]	Delay in the diagnosis [years]	SBP/DBP [mm Hg]		Number of antihypertensive drugs		Invasive PG [mm Hg]	
				Before stenting	After stenting	Baseline	Follow-up	Before stenting	After stenting
1[†]	F	77	n/a	140/90	n/a	4	n/a	39	3
2	M	46	10	130/80	130/80	5	5	58	1
3[§,#]	F	26	< 1	140/90	130/70	3	0	25	5
4[#]	M	18[##]	2	200/120	140/70	2	4	60	6
5	F	41	1	175/84	120/70	3	2	51	4
6	M	30	4	170/75	117/69	5	3	28	0
7	F	35	11	208/87	133/79	3	0	49	1
8	M	26	10	145/80	129/77	3	0	45	0
9[*]	F	35	n/a	162/93	123/76	3	1	48	0
10	M	38	21	169/102	154/109	3	2	70	0
11[§]	M	41	< 1	170/80	164/96	3	2	62	4
12	M	37	19	175/77	151/91	6	4	33	3
13	F	38	29	135/70	101/73	0	0	39	0
14	M	38	36	150/84	135/70	3	2	25	0
15	M	30	17	182/82	162/84	3	4	18	0
16	M	47	12	131/75	132/75	4	0	39	3
17[*]	F	27	n/a	117/76	101/70	1	0	30	3
18	M	60	30	173/85	120/82	3	0	26	0
19	F	35	16	148/81	122/78	3	2	14	1
20[**]	M	31	n/a	158/68	135/72	4	5	34	1
21	F	27	14	146/84	129/86	2	0	27	0
22[**]	M	41	n/a	144/84	105/67	4	2	24	2
23	M	29	16	144/79	148/77	1	1	67	0
24	M	45	37	149/89	135/87	4	4	57	1

M – male, F – female, SBP – systolic blood pressure, DBP – diastolic blood pressure, PG – pressure gradient, n/a – not available/not applicable, [†]intra-hospital death, [§]prompt diagnosis of CoA, [#]treated with a bare metal stent, [##]age at the original intervention, [*]diagnosed in infancy, not operated, [**]diagnosed and operated in infancy.

tients received antihypertensive treatment at baseline (79.2% with ≥ 3 drugs), compared to 65.2% at follow-up (30.4% with ≥ 3 drugs); $p = 0.008$, $Z = -2.65$. The mean number of antihypertensives dropped from 3.1 ±1.3 to 1.9 ±1.7 ($p < 0.001$; 95% CI: 0.67–1.94). The mean number of reduced drugs per patient was 1.3 ±1.4 (Table I).

Conclusions: Delayed diagnosis of CoA leads to unnecessary antihypertensive medication, therefore diagnostics focused on CoA should be carried out in all children and young adults presenting with HTA. Endovascular stenting is a safe and effective treatment strategy for CoA in adults that significantly improves medical treatment.