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Multi-modality diagnostic assessment in interventional cardiology

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LIST OF PUBLICATIONS

1. G. Sinagra, A. Di Lenarda, M. Moretti, L. Mestroni, B. Pinamonti, A. Perkan, A. Salvi, **S. Pyxaras**, R. Bussani, F. Silvestri, F. Camerini. The Challenge of Cardiomyopathies in 2007. *J Cardiovasc Med* 2008;9(6):545-54.
2. Aleksova A, Sabbadini G, Merlo M, Pinamonti B, Barbati G, Zecchin M, Bussani R, Silvestri F, Iorio AM, Stolfo D, Dal Ferro M, Dragos AM, Meringolo G, **Pyxaras S**, Lo Giudice F, Perkan A, di Lenarda A, Sinagra G. Natural history of dilated cardiomyopathy: from asymptomatic left ventricular dysfunction to heart failure--a subgroup analysis from the Trieste Cardiomyopathy Registry. *J Cardiovasc Med* 2009;10: 699-705.
3. **Pyxaras SA**, Lardieri G, Milo M, Vitrella G, Sinagra G. Chest pain and ST elevation: not always ST-segment-elevation myocardial infarction. *J Cardiovasc Med (Hagerstown)*. 2010;11:615-8.
4. Merlo M, **Pyxaras S**, Pinamonti B, Barbati G, Di Lenarda A, Sinagra G. Prevalence and Prognostic Significance of Left Ventricular Reverse Remodeling in Dilated Cardiomyopathy under Tailored Medical Treatment. *J Am Coll Cardiol* 2011; 57:1468-76.
5. Pinamonti B, Dragos AM, **Pyxaras S**, Merlo M, Pivetta A, Barbati G, Di Lenarda A, Morgera T, Mestroni L, Sinagra G. Prognostic predictors in Arrhythmogenic Right Ventricular Cardiomyopathy: results from a 10 year Registry. *Eur Heart J* 2011; 32:1105-13.
6. **Pyxaras SA**, Merlo M, Barbati G, Delise M, Perkan A, Di Lenarda A, Sinagra G. Prognostic role of hemodynamic evaluation at rest and at maximum workload in patients with idiopathic dilated cardiomyopathy. *Int J Cardiol* 2011;150:97-9.
7. Taylor M, Graw S, Sinagra G, Barnes C, Slavov D, Brun F, Pinamonti B, Salcedo EE, Sauer W, **Pyxaras S**, Anderson B, Simon B, Bogomolovas J, Labeit S, Granzier H, Mestroni L. Genetic variation in titin in arrhythmogenic right ventricular cardiomyopathy-overlap syndromes. *Circulation* 2011;124:876-85.
8. **Pyxaras SA**, Pinamonti B, Barbati G, Santangelo S, Valentincic M, Cettolo F, Secoli G, Magnani S, Merlo M, Lo Giudice F, Perkan A, Sinagra G. Echocardiographic evaluation of systolic and mean pulmonary artery pressure in the follow-up of patients with pulmonary hypertension. *Eur J Echocardiogr* 2011;12:696-701.
9. **Pyxaras S**, Santangelo S, Perkan A, Vitrella G, Rakar S, Della Grazia E, Salvi A, Sinagra G. Reversal of angiodyspasia-derived anemia after transcatheter aortic valve implantation. *J Cardiol Cases* 2012; 5:e128-e131.
10. Perkan A, Lo Giudice F, Santangelo S, Magnani S, **Pyxaras S**, Sinagra G. Treatment of acute high-risk pulmonary embolism. *G Ital Cardiol* 2011;12:577-87.
11. Pijls NH, Van t Veer M, Oldroyd KG, Berry C, Fearon WF, Kala P, Bocek O, Witt N, De Bruyne B, **Pyxaras S**. Instantaneous wave-free ratio or fractional flow reserve without hyperemia: novelty or nonsense? *J Am Coll Cardiol* 2012;59:1916-7.

12. Mangiacapra F, Bartunek J, Bijnens N, Peace AJ, Dierickx K, Bailleul E, Di Serafino L, **Pyxaras SA**, Fraeyman A, Meeus P, Rutten M, De Bruyne B, Wijns W, Van de Vosse F, Barbato E. Peri-procedural variations of platelet reactivity during elective percutaneous coronary intervention. *J Thromb Haemost* 2012; 10:2452-61.
13. Wijns W, **Pyxaras SA**. Self-expanding stents for primary PCI during acute myocardial infarction: did we find the right indication . . . at last! *JACC Cardiovasc Interv* 2012 5:1220-2.
14. Muller O, **Pyxaras SA**, Trana C, Mangiacapra F, Barbato E, Wijns W, Taylor, CA, De Bruyne B. Pressure-Diameter Relationship in Human Coronary Arteries. *Circ Cardiovasc Interv* 2012; 5:791-6.
15. **Pyxaras SA**, Sinagra G, Mangiacapra F, Perkan A, Di Serafino L, Vitrella G, Rakar S, De Vroey F, Santangelo S, Salvi A, Toth G, Bartunek J, De Bruyne B, Wijns W, Barbato E. Contrast induced nephropathy in patients undergoing primary percutaneous coronary intervention without acute left ventricular ejection fraction impairment. *Am J Cardiol* 2013;111:684-8.
16. Mangiacapra F, Peace A, Di Serafino L, **Pyxaras SA**, Bartunek J, Wyffels E, Heyndrickx G, Wijns W, De Bruyne B, Barbato E. Intracoronary Enalaprilat to Reduce MICROvascular Damage During Percutaneous Coronary Intervention (ProMicro study). *J Am Coll Cardiol* 2013;61:615-21.
17. Berry C, van 't Veer M, Witt N, Kala P, Bocek O, **Pyxaras SA**, McClure J, Fearon W, Barbato E, Tonino P, De Bruyne B, Pijls N, Oldroyd K. VERification of Instantaneous wave-Free ratio and fractional flow reserve for the assessment of coronary artery stenosis severity in everyday practice (VERIFY): a multi-center study in consecutive patients. *J Am Coll Cardiol*;61:1421-7.
18. Johnson N, Kirkeeide R, Asrress KN, Fearon W, Lockie T, Marques K, **Pyxaras S**, Rolandi MC, van 't Veer M, De Bruyne B, Piek J, Pijls N, Redwood S, Siebes M, Spaan J, Gould KL. Does the instantaneous wave-free ratio (iFR) approximate the fractional flow reserve (FFR)? *J Am Coll Cardiol* 2013;61:1428-35.
19. Wijns W, **Pyxaras SA**. Chasing numbers: the reinvention of clinical science. *JACC Cardiovasc Interv* 2013;6:226-7.
20. **Pyxaras SA**, Mangiacapra F, Di Serafino L, Toth G, De Vroey F, Perkan A, Vanderheyden M, De Bruyne B, Salvi A, Wijns W, Sinagra G, Barbato E. Synergistic Effect Of Thrombus Aspiration And IIb/IIIa Glycoprotein Inhibitors In Primary Percutaneous Coronary Intervention. *Catheter Cardiovasc Interv* 2013. doi: 10.1002/ccd.24837.
21. Di Serafino L, **Pyxaras SA**, Mangiacapra F, Dierickx K, Toth G, Bartunek J, De Bruyne B, Van Mieghem C, Wijns W, Barbato E. *EuroIntervention* 2013;8:1252-8.
22. Tu S, **Pyxaras SA**, Li Y, Barbato E, Reiber JH, Wijns W. In vivo flow simulation at coronary bifurcation reconstructed by fusion of 3-dimensional X-ray angiography and optical coherence tomography. *Circ Cardiovasc Interv* 2013;6:e15-7.

23. **Pyxaras SA**, Tu S, Barbato E, Reiber JH, Wijns W. Optimization of tryton dedicated coronary bifurcation system with coregistration of optical coherence tomography and fractional flow reserve. *JACC Cardiovasc Interv* 2013;6:e39-40.
24. Toth G, De Bruyne B, Casselman F, De Vroey F, **Pyxaras S**, Di Serafino L, Van Praet F, Van Mieghem C, Stockman B, Wijns W, Degrieck I, Barbato E. Fractional flow reserve-guided versus angiography-guided coronary artery bypass graft surgery. *Circulation* 2013;128:1405-11.
25. **Pyxaras SA**, Tu S, Barbato E, Barbati G, Di Serafino L, De Vroey F, Toth G, Mangiacapra F, Sinagra G, De Bruyne B, Reiber JH, Wijns W. Quantitative angiography and optical coherence tomography for the functional assessment of nonobstructive coronary stenoses: comparison with fractional flow reserve. *Am Heart J* 2013;166:1010-1018.
26. **Pyxaras SA**, Tu S, Barbato E, Wyffels E, Reiber JH, Wijns W. Co-registration of fractional flow reserve and optical coherence tomography with the use of a three-dimensional angiographic roadmap: an opportunity for optimisation of complex percutaneous coronary interventions. *EuroIntervention* 2013;9:889.
27. Di Serafino L, Sarma J, Dierickx K, Ntarladimas I, **Pyxaras SA**, Delrue L, De Bruyne B, Wijns W, Barbato E, Bartunek J. Monocyte-Platelets Aggregates as Cellular Biomarker of Endothelium-Dependent Coronary Vasomotor Dysfunction in Patients with Coronary Artery Disease. *J Cardiovasc Transl Res* 2014; 7:1-8.
28. **Pyxaras SA**, Mangiacapra F, Wijns W, Di Serafino L, De Vroey F, Toth G, Sinagra G, De Bruyne B, Heyndrickx GR, Barbato E. ACEF and clinical SYNTAX score in the risk stratification of patients with heavily calcified coronary stenosis undergoing rotational atherectomy with stent implantation. *Catheter Cardiovasc Interv* 2014; 83:1067-73.
29. Toth G, Hamilos M, **Pyxaras S**, Mangiacapra F, Nelis O, De Vroey F, Di Serafino L, Muller O, Van Mieghem C, Wyffels E, Heyndrickx GR, Bartunek J, Vanderheyden M, Barbato E, Wijns W, De Bruyne B. Evolving concepts of angiogram: fractional flow reserve discordances in 4000 coronary stenoses. *Eur Heart J* 2014;35:2831-8.
30. Capodanno D, Gori T, Nef H, Latib A, Mehilli J, Lesiak M, Caramanno G, Naber C, Di Mario C, Colombo A, Capranzano P, Wiebe J, Araszkievicz A, Geraci S, **Pyxaras S**, Matesini A, Naganuma T, Münzel T, Tamburino C. Percutaneous coronary intervention with everolimus-eluting bioresorbable vascular scaffolds in routine clinical practice: early and midterm outcomes from the European multicentre GHOST-EU registry. *EuroIntervention* 2015;10:1144-53.
31. Di Serafino L, Borgia F, Maeremans J, **Pyxaras SA**, De Bruyne B, Wijns W, Heyndrickx G, Dens J, Di Mario C, Barbato E. The age, creatinine, and ejection fraction score to risk stratify patients who underwent percutaneous coronary intervention of coronary chronic total occlusion. *Am J Cardiol* 2014;114:1158-64.
32. Toth GG, Toth B, Johnson NP, De Vroey F, Di Serafino L, **Pyxaras S**, Rusinaru D, Di Gioia G, Pellicano M, Barbato E, Van Mieghem C, Heyndrickx GR, De Bruyne B, Wijns W. Revas-

- cularization Decisions in Patients With Stable Angina and Intermediate Lesions: Results of the International Survey on Interventional Strategy. *Circ Cardiovasc Interv.* 2014; 7:751-9.
33. Zhang Y, **Pyxaras SA**, Wolf A, Schmitz T, Naber CK. Propensity-matched comparison between Direct Flow Medical, Medtronic Corevalve, and Edwards Sapien XT prostheses: Device success, thirty-day safety, and mortality. *Catheter Cardiovasc Interv* 2015; 85(7):1217-25.
34. Tamburino C, Latib A, van Geuns RJ, Sabate M, Mehilli J, Gori T, Achenbach S, Pan Alvarez M, Nef H, Lesiak M, Di Mario C, Colombo A, Naber CK, Caramanno G, Capranzano P, Brugaletta S, Geraci S, Araszkievicz A, Mattesini A, **Pyxaras SA**, Rzeszutko L, Depukat R, Diletti R, Boone E, Capodanno D, Dudek D. Contemporary practice and technical aspects in coronary intervention with bioresorbable scaffolds: a European perspective. *EuroIntervention* 2015; 11:45-52.
35. Toth GG, Toth B, De Vroey F, Di Serafino L, **Pyxaras S**, Rusinaru D, Di Gioia G, Pellicano M, Barbato E, Van Mieghem C, Heyndrickx GR, De Bruyne B, Wijns W, Johnson NP. Response to letter regarding article, „revascularization decisions in patients with stable angina and intermediate lesions: results of the international survey on interventional strategy“. *Circ Cardiovasc Interv.* 2015 Feb;8(2):e002296.
36. Ruperto C, Minà C, Brun F, Liotta R, **Pyxaras S**, Clemenza F, Sinagra G. Arrhythmogenic cardiomyopathy with biventricular involvement and noncompaction. *J Cardiovasc Med (Hagerstown)*. 2015 Feb 13. [Epub ahead of print].
37. Tu S, Echavarría-Pinto M, von Birgelen C, Holm NR, **Pyxaras SA**, Kumsars I, Lam MK, Valkenburg I, Toth GG, Li Y, Escaned J, Wijns W, Reiber JH. Fractional Flow Reserve and Coronary Bifurcation Anatomy: A Novel Quantitative Model to Assess and Report the Stenosis Severity of Bifurcation Lesions. *JACC Cardiovasc Interv* 2015; 8:564-74.
38. **Pyxaras SA**, Schmitz T, Naber CK. The STENTYS Self-Apposing Stent®. *Eurointervention* 2015; 11 Suppl V:V147-8.
39. G Toth G, **Pyxaras S**, Mortier P, De Vroey F, Di Gioia G, Adjedj J, Pellicano M, Ferrara A, De Schryver T, Van Hoorebeke L, Verheghe B, Barbato E, De Bruyne B, De Beule M, Wijns W. Single String Technique for Coronary Bifurcation Stenting: Detailed Technical Evaluation and Feasibility Analysis. *JACC Cardiovasc Interv* 2015;8:949-59.
40. **Pyxaras SA**, Zhang Y, Wolf A, Schmitz T, Naber CK. Effect of Varying Definitions of Contrast-induced Acute Kidney Injury and Left Ventricular Ejection Fraction on One-Year Mortality in Patients Having Transcatheter Aortic Valve Implantation. *Am J Cardiol* 2015;16:426-30.
41. Naber CK, **Pyxaras SA**, Nef H, IJsselmuiden AJ, Briguori C, Schlundt C, Wykrzykowska J, Eberli FR, Möllmann H, Galatius S, Rieber J, Commeau P, van Geuns RJ, Bouchez D, Mudra H. Final results of a self-apposing paclitaxel eluting stent for the Percutaneous treatment of de novo lesions in native bifurcated coronary arteries study. *Eurointervention* 2016; 12:356-8.

42. Gori T, Wiebe J, Capodanno D, Latib A, Lesiak M, **Pyxaras SA**, Mehilli J, Caramanno G, Di Mario C, Brugaletta S, Weber J, Capranzano P, Sabate M, Mattesini A, Geraci S, Naber CK, Araszkievicz A, Colombo A, Tamburino C, Nef H, Münzel T. Early and midterm outcomes of bioresorbable vascular scaffolds for ostial coronary lesions: insights from the GHOST-EU registry. *EuroIntervention* 2016;12:e550-6.
43. Naber CK, **Pyxaras SA**, Ince H, Latib A, Frambach P, Den Heijer P, Wagner D, Butter C, Colombo A, Kische S. Real-world multicentre experience with the Direct Flow Medical® repositionable and retrievable transcatheter aortic valve implantation system for the treatment of high-risk patients with severe aortic stenosis. *EuroIntervention* 2016;11:e1314-20.
44. Di Serafino L, Borgia F, Maeremans J, **Pyxaras SA**, De Bruyne B, Wijns W, Heyndrickx GR, Dens J, Di Mario C, Barbato E. Periprocedural Myocardial Injury and Long-Term Clinical Outcome in Patients Undergoing Percutaneous Coronary Interventions of Coronary Chronic Total Occlusion. *J Invasive Cardiol* 2016;28:410-414.
45. Naganuma T, Colombo A, Lesiak M, Capodanno D, Gori T, Nef H, Caramanno G, Naber C, Di Mario C, Ruparella N, Capranzano P, Wiebe J, Araszkievicz A, Geraci S, Kawamoto H, **Pyxaras S**, Mattesini A, Münzel T, Tamburino C, Latib A. Bioresorbable vascular scaffold use for coronary bifurcation lesions: A substudy from GHOST EU registry. *Catheter Cardiovasc Interv* 2017; 89:47-56.
46. **Pyxaras SA**, Hunziker L, Chieffo A, Meliga E, Latib A, Park SJ, Onuma Y, Capranzano P, Valgimigli M, Narbutė I, Makkar RR, Palacios IF, Kim YH, Buszman PP, Chakravarty T, Sheiban I, Mehran R, Margey R, Agnihotri A, Marra S, Capodanno D, Leon MB, Moses JW, Fajadet J, Lefevre T, Morice MC, Erglis A, Tamburino C, Alfieri O, Serruys PW, Colombo A, Naber CK. Long-Term Clinical Outcomes After Percutaneous Coronary Intervention Versus Coronary Artery Bypass Grafting for high-risk Acute Coronary Syndrome From the DELTA Registry. *EuroIntervention* 2016;12:e623-31.
47. Ortega-Paz L, Capodanno D, Giacchi G, Gori T, Nef H, Latib A, Caramanno G, Di Mario C, Naber C, Lesiak M, Capranzano P, Wiebe J, Mehilli J, Araszkievicz A, **Pyxaras S**, Mattesini A, Geraci S, Naganuma T, Colombo A, Münzel T, Sabaté M, Tamburino C, Brugaletta S. Impact of overlapping on 1-year clinical outcomes in patients undergoing everolimus-eluting bioresorbable scaffolds implantation in routine clinical practice: Insights from the European multicenter GHOST-EU registry. *Catheter Cardiovasc Interv* 2017;89:812-818.
48. **Pyxaras SA**, Toth GG, Di-Gioia G, Ughi GJ, Tu S, Rusinaru D, Adriaenssens T, Reiber JHC, Leon MB, Bax JJ, Wijns W. Anatomical and functional assessment of Tryton bifurcation stent before and after final kissing balloon dilatation: evaluations by three-dimensional coronary angiography, optical coherence tomography imaging and fractional flow reserve. *Catheter Cardiovasc Interv* 2017;90(1):E1-E10.

49. Wijns W, **Pyxaras SA**. Optical Coherence Tomography Guidance for Percutaneous Intervention: The French „Doctors“ Are Seeing Light at the End of the Tunnel. **Circulation** 2016;134:918-22.
50. Naber CK, **Pyxaras SA**, Ince H, Frambach P, Colombo A, Butter C, Gatto F, Hink U, Nickenig G, Bruschi G, Brueren G, Tchétché D, Den Heijer P, Schillinger W, Scholtz S, van der Heijden J, Lefèvre T, Gilard M, Kuck KH, Schofer J, Divchev D, Baumgartner H, Wagner D, Latib A, De Marco F, Kische S. A Multicenter European Registry to Evaluate the Direct Flow Medical®. Transcatheter Aortic Valve System for the Treatment of Patients with Severe Aortic Stenosis. *EuroIntervention* 2016;12:e1413-e1419.
51. Ortega-Paz L, Capodanno D, Gori T, Nef H, Latib A, Caramanno G, Di Mario C, Naber C, Lesiak M, Capranzano P, Wiebe J, Mehilli J, Araszkievicz A, **Pyxaras S**, Mattesini A, Geraci S, Naganuma T, Colombo A, Münzel T, Sabaté M, Tamburino C, Brugaletta S. Predilation, sizing and post-dilation scoring in patients undergoing everolimus-eluting bioresorbable scaffold implantation for prediction of cardiac adverse events: development and internal validation of the PSP score. *EuroIntervention* 2017;12:2110-2117.
52. Geraci S, Kawamoto H, Caramanno G, Ruparella N, Capodanno D, Brugaletta S, Gori T, Nef H, Sabate M, Mehilli J, Lesiak M, Naber C, Di Mario C, Capranzano P, Wiebe J, Araszkievicz A, **Pyxaras S**, Mattesini A, Münzel T, Tamburino C, Colombo A, Latib A. Bioresorbable Everolimus-Eluting Vascular Scaffold for Long Coronary Lesions: A Sub-analysis of the International, Multicenter GHOST-EU Registry. *JACC Cardiovasc Interv* 2017;10:560-568.
53. **Pyxaras SA**, Pizzulli L, Gerckens U. Nose cone entrapment after transcatheter aortic valve implantation of a CoreValve self-expandable bioprosthesis. *J Cardiovasc Med* 2016;17 Suppl 2:e183-e184.
54. **Pyxaras SA**, Wijns W, Reiber JHC, Bax JJ. Invasive assessment of coronary artery disease. *J Nucl Cardiol* 2017. doi: 10.1007/s12350-017-1050-5. [Epub ahead of print]
55. Capranzano P, Capodanno D, Brugaletta S, Latib A, Mehilli J, Nef H, Gori T, Lesiak M, Geraci S, **Pyxaras S**, Mattesini A, Münzel T, Araszkievicz A, Caramanno G, Naber C, Di Mario C, Sabaté M, Colombo A, Wiebe J, Tamburino C. Clinical outcomes of patients with diabetes mellitus treated with Absorb bioresorbable vascular scaffolds: a subanalysis of the European Multicentre GHOST-EU Registry. *Catheter Cardiovasc Interv* 2017. doi: 10.1002/ccd.27388. [Epub ahead of print]
56. **Pyxaras SA**, Adriaenssens T, Barbato E, Ughi GJ, Di Serafino L, De Vroey F, Toth G, Tu S, Reiber JHC, Bax JJ, Wijns W. In-stent fractional flow reserve variations and related optical coherence tomography findings: the FFR-OCT co-registration study. *Int J Cardiovasc Imaging* 2017. doi: 10.1007/s10554-017-1262-4. [Epub ahead of print]
57. **Pyxaras SA**, Wijns W. Polymeric bioresorbable coronary scaffolds: the hype is over, but the dream lives on. *EuroIntervention*;13:1506-1509.

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CURRICULUM VITAE

Stylianos Pyxaras was born in Thessaloniki, Greece on 05.09.1979. He started his studies at the Faculty of Medicine of the University of Trieste in 1998. He obtained a bachelor's degree in Medicine and Surgery at the University of Trieste on 28/03/2008 discussing the thesis entitled „Prognostic role of hemodynamic evaluation at rest and at maximum workload in patients with idiopathic dilated cardiomyopathy“. He completed his Master degree in Cardiology with the dissertation entitled "Synergistic effect of thrombus aspiration and abciximab in primary percutaneous coronary intervention", with a score of 50/50 Cum Laude bachelor degree, 03/08/2011. From 01/04/2011 to 01/08/2013, he attended the Cardiovascular research Center Aalst, OLV-Clinic, Belgium as an interventional cardiology fellow, under the supervision of Prof. William Wlajns. From 01/01/2014 he followed a technical and professional training course in the field of intracoronary imaging at the Department of Cardiology at the University Medical Center in Leiden (Netherlands), pioneer center in Europe in the field of diagnosis and treatment of cardiovascular diseases, under the supervision of Prof. J.J. Bax. The research at the Department of Cardiology at the University Medical Center in Leiden (Netherlands) has resulted in numerous publications in international journals and several abstracts accepted in national and international conferences. He got an appointment as consultant cardiologist at the Department of Cardiology, Coburg-Clinic, Coburg, Germany on February 2016. He is currently deputy senior consultant and head of cathlab at the Department of Cardiology, Landshut-Achdorf Hospital, Landshut, Germany.

