

VASCULAR SURGERY RESEARCH CENTER

DIRECTOR

Dr. Renato Casana

CLINICAL STUDIES COORDINATOR

Dr. Daniele Bissacco

TEAM

Dr. Daniela Lambertenghi Deliliers

Dr. Andrea Otero

RESEARCH ACTIVITIES

The Experimental Research Centre in Vascular Surgery has distinguished itself over the years for research activities in the prevention of cerebral stroke through the diagnosis and treatment of carotid stenosis (carotid endarterectomy and carotid artery stenting) in collaboration with major national and international universities, particularly with the Nuffield Department of Surgical Science at the University of Oxford as part of the ACST-2 trial (Carotid Endarterectomy Versus Carotid Artery Stenting in Asymptomatic Patients). It has been an experimental center through research protocols on the use of new materials and devices (low-porosity Mesh Stents) for the treatment of carotid stenosis using carotid stenting procedures in the prevention of cerebral stroke, participating in numerous multicentric studies and randomized trials, and becoming a European center of excellence, a precursor of endovascular and surgical techniques.

Recently, it has embarked on a new line of research in the field of phlebology, coordinating several research protocols on venous diseases. In particular, it focuses on optimizing the use of new minimally invasive endovascular techniques for the treatment of venous insufficiency and saphenous reflux, such as saphenous thermal ablation using radiofrequency technique. The primary objective is to analyze medium- and long-term results and identify increasingly less invasive procedures to improve the quality of life of patients in the postoperative period and reduce procedural costs and costs related to resumption of work activity. It is also a reference center for venous thrombotic diseases (deep and superficial venous thrombosis), through its recognition as a participating center in the RIETE registry, which collects important data on thrombotic diseases at a European level for research purposes.

Lastly, through close collaboration with important research centers in the vascular field, it participates in numerous studies on thoracic and abdominal aortic pathologies through engineering and computational analysis (through virtual analysis) of arterial vascular fluid dynamics.

RESEARCH PROJECTS

- (AUXGARD) Prospective monocentric Italian study with micromesh stents C-Guard™ as cerebral embolic prevention in patients undergoing carotid stenting procedure.

- (STRAS Study) Endovascular radiofrequency ablation versus traditional surgical stripping for treatment of superficial venous reflux: results and economic assessment in a monocentric prospective randomized trial.
- (CARDIMAUX) Retrospective observational study in patients submitted to carotid revascularization to analyze the possible link between the onset of major cardiovascular events and restenosis and the presence of diabetes as a predictor of risk.
- (VASCOR-AUX) Validation of 6 scores to predict life expectancy after carotid stenting and endarterectomy in asymptomatic patients: Retrospective observational monocentric study.
- (FLUIDODINAMIC-AUX) Computational fluid dynamics pilot study of critical carotid stenosis in different types of plaque and carotid revascularization.
- (TIROVASC-AUX) Prospective observational study for the study of carotid intima-media thickness (IMT) in patients undergoing thyroid surgery.
- (MASTER-VASC) A study protocol for evaluating aortic stiffness modifications in patients treated with endovascular aortic repair.

MAIN RESEARCH COLLABORATIONS AND NETWORKS

- FUndación para el Estudio de la ENfermedad TromboEmbólica – FUENTE
- LaBS, Department of Chemistry, Materials and Chemical Engineering "Giulio Natta", Politecnico di Milano
- The Vascular Surgery Covid-19 Collaborative (VASCC)
- Vascular Surgery Group - Lombardy Region (VSG-RL)
- the ICARUS Global Collaboration Project: Intraoperative Complications Assessment and Reporting with Universal Standards.
- SIFL - Italian Society of Phlebology

RESEARCH ACTIVITIES ON NATIONAL AND INTERNATIONAL NETWORKS:

- Auxguard Italian Prospective Monocentric Study on the Use of Cguard™ Coated Stent as Cerebral Embolic Prevention. Principal Investigator: Dr. R. Casana (Director of the Experimental Research Centre in Vascular Surgery at the Auxologico Italiano IRCCS Institute);
- Iron Guard - Registry Prospective Italian Registry Of Carotid Stenting With The C-Guard Mesh Stent. Multicentric Prospective Study in collaboration with La Sapienza University of Rome and the University of Siena.
- Carotid surgery and carotid stenting: Comparison of techniques in a multicentric TRIAL. (ACST-2 Trial in collaboration with HTA/BUPA Foundation/ Nuffield Department of Surgical Sciences University
- MRI Role In The Assessment Of Embolic Risk In Carotid Revascularization. MRI Substudy Update Acst2. Department of Neurology and Stroke - Unit University Hospital Basel
- RIETE: Computerized Registry of Patients with Venous Thromboembolism (RIETE)

- Treatment of refractory arterial hypertension and heart failure through carotid glomus stimulator implantation (Baroreflex Activation Therapy) 9201 West Broadway Avenue, Suite 650 Minneapolis, MN 55445 MFM;
- Causes and susceptibility to atherosclerosis of the aortic wall (in collaboration with the University of Milan, Department of Human Morphology and Biomedical Sciences).

IMPORTANT ACHIEVEMENTS

"BEST RECRUITMENT CENTER"

ACST-2 Asymptomatic Carotid Surgery Trial 2

Award conferred by: Nuffield Department of Surgical Science, Oxford University 2013

"OVERALL TOP RECRUITMENT CENTER"

ACST2 Asymptomatic Carotid Surgery Trial 2

Award conferred by: Nuffield Department of Surgical Science, Oxford University 2014.

"DIAMOND RECRUITMENT CENTER"

ACST2 Asymptomatic Carotid Surgery Trial - Collaborator's Meeting Belgrade 2016

Award conferred by: Nuffield Department of Surgical Science, Oxford University.

"SCIENTIFIC AWARD IN VASCULAR SURGERY"

Endovascular Cup - Viareggio 22-23 May 2015

Award for the most relevant scientific publication: Casana R. et al. Carotid artery stenting in patients with acute coronary syndrome: a possible primary therapy for symptomatic carotid stenosis. J Endovasc Ther. 2013.

Award conferred by: Italian Society of Vascular and Endovascular Surgery, University of Modena and Reggio Emilia, University of Pisa, and Italian College of Hospital Surgeons in Vascular Surgery.

BEST SCIENTIFIC REPORT AWARD

Bissacco D: "Recurrent varicose veins after surgery (REVAS): clinical analysis and color Doppler ultrasound in 9043 patients"

25th "Fleb Des Alpes", Bolzano 15-17 February 2017

BEST RESEARCH PROJECT AWARD IN "INTEGRATED TECHNOLOGIES IN THE TREATMENT OF LOWER LIMB VARICOSE VEINS"

Bissacco D: "Association of n-butyl cyanoacrylate and sclerotherapy in the treatment of lower limb varicose veins" XXX National Congress S.I.F., Naples 8-10 November 2017

BEST SCIENTIFIC REPORT AWARD

Bissacco D: "Role of questionnaires after venous surgery: systematic literature review and practical considerations."

XXIX National Congress of the Italian Society of Phlebology. Rome, 26-27 October 2018

MOST RELEVANT PUBLICATIONS:

Casana R, Bissacco D, Malloggi C, Tolva VS, Odero A Jr, Domanin M, Trimarchi S, Silani V, Parati G. Aortic arch types and postoperative outcomes after carotid artery stenting in asymptomatic and symptomatic patients. *Int Angiol.* 2020 Dec;39(6):485-491.

Casana R, Tolva VS, Odero A Jr, Malloggi C, Silani V, Parati G. Carotid artery stenting is safe and effective for symptomatic patients with acute coronary syndrome. *Catheter Cardiovasc Interv.* 2020 Jul;96(1):129-135.

Casana R, Domanin M, Romagnoli S, **Bissacco D**, Malloggi C, Grassi V, Silani V, Parati G, Schermerhorn ML, Trimarchi S. COVID-19 and supra-aortic trunks disease: review of literature about critical phase and sequelae. *J Cardiovasc Surg (Torino).* 2021 Dec;62(6):535-541.

Bissacco D, Casana R. Trends and treatments in vena cava disease: advancements, possibilities and perspectives. *J Cardiovasc Surg (Torino).* 2022;63(6):647-648.

Bissacco D, Malloggi C, Lomazzi C, Domanin M, Odero A Jr, Trimarchi S, **Casana R.** Quality-of-life assessment in patients treated with radiofrequency ablation with or without great saphenous vein recanalization. *Phlebology.* 2022 Apr;37(3):223-225.

Bissacco D, Malloggi C, Domanin M, Cortesi L, Scudeller L, Mognarelli J, Porretta T, Costantini E, Silani V, Parati G, Trimarchi S, **Casana R.** Role of risk scoring systems in predicting life expectancy after carotid endarterectomy in asymptomatic patients. *J Vasc Surg.* 2022 Mar;75(3):906-914.e4.

Bissacco D, Lomazzi C, Buongiovanni G, Magni A, Domanin M, **Casana R**, Bismuth J, VAN Herwaarden JA, Upchurch Jr GR Jr, Trimarchi S. COVID-19 and aortic disease: a practical systematic review of the literature on management and outcomes. *J Cardiovasc Surg (Torino).* 2021 Dec;62(6):527-534.

Casana R, Tolva V, Odero A Jr, Malloggi C, Paolucci A, Triulzi F, Silani V. Safety and Efficacy of the New Micromesh-Covered Stent CGuard in Patients Undergoing Carotid Artery Stenting: Early Experience From a Single Centre. *Eur J Vasc Endovasc Surg.* 2017 Dec;54(6):681-687.