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EDITORIAL

CONSENSUS IN CAROTID DISEASE PART I

Introducing the special issues on consensus in Carotid Disease

Part 1 and Part 2

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Two Special Issues published in *International Angiology* discuss several important contemporary topics concerning the management of patients with asymptomatic (AsxCS) and symptomatic (SxCS) carotid artery stenosis. These articles focus on the diagnosis, prevention and treatment of patients with AsxCS or SxCS. They also discuss various current topics regarding the conservative (*i.e.*, best medical treatment [BMT]) and invasive treatment of patients with both AsxCS and SxCS (namely carotid endarterectomy [CEA], carotid artery stenting [CAS] and Trans-Carotid Artery Revascularization [TCAR]).

AbuRahma[1] proposes an algorithmic approach to the management of patients with AsxCS and SxCS and how to choose BMT alone, or BMT plus a carotid revascularization procedure (CEA, CAS or TCAR) for each patient. TCAR has been increasingly used in the USA for the treatment of both AsxCS and SxCS patients. Crisostomo *et al.*[2] discuss the rising utilization of TCAR and the associated outcomes for patients with both AsxCS and SxCS. On the other hand, considerable improvements in the constituents of BMT have been reported in the last few years. Jothi *et al.*[3] present the contemporary outcomes for medical management of patients with moderate to severe carotid artery stenosis.

Artificial intelligence (AI) has been playing an increasing role in all aspects of Medicine. The comprehensive review by Coelho *et al.*[4] discusses the potential role of AI in predicting cerebrovascular events in patients with carotid artery stenosis.On a different field, Breault *et al.*[5] analyze the various technical issues for the reconstruction of extracranial carotid artery redundancy concurrent with CEA.

Paraskevas *et al.*[6] discuss arguments supporting the view that carotid plaque features are better predictors of future stroke risk than the degree of lumen stenosis typically expressed as percentage diameter reduction.This review article presents the evidence indicating that carotid plaque features more accurately identify AsxCS patients at high future stroke risk. In their comprehensive article, Park and Schermerhorn[7] present the outcomes of carotid revascularization procedures in symptomatic patients according to preoperative symptoms, timing from onset of symptoms and modified Rankin Score.

Implementation of vascular risk factor control and BMT plays a crucial role in the management of patients with both AsxCS and SxCS. Pitha[8] presents an analysis of the various options available to reach optimal cardiovascular risk profile in patients with carotid artery stenosis.Covering different topics, Bruno *et al.*[9] report on mid-term outcomes of endovascular treatment of internal carotid artery dissection, while Ho *et al.*[10] discuss the hemodynamics involved in carotid artery stenosis.Casella *et al.*[11] analyze the role of carotid plaque features in the decision-making process for the treatment of carotid artery disease. Furthermore, Svetlikov *et al.*[12] present an analysis of the role of vasa vasorum in carotid artery stenosis.

Patients with recent cerebrovascular symptoms and ipsilateral high-grade SxCS should undergo a carotid revascularization procedure (preferably CEA rather than CAS) within 2 weeks of symptoms to avoid a recurrent stroke. The topic of urgent intervention for patients with recent cerebrovascular symptoms and ipsilateral SxCS is covered by Santoro *et al.*[13] Prentzas *et al.*[14] discuss the topic of explainable AI in the prediction of high-risk asymptomatic carotid plaques based on ultrasonic image features. In their narrative review, Liapis and Tzavellas[15] discuss the role of TCAR for patients with SxCS. Furthermore, Migdalski and Jawien[16] present the available options in patients with cross-clamping intolerance during CEA and support the option of conversion to CAS. Nicolaides *et al.*[17] provide a comprehensive analysis of the performance of the "Prevalence of Asymptomatic Carotid Artery Stenosis (PACAS)" risk score in the cohort of the Cyprus Epidemiology Study on Atherosclerosis.

Perler[18] presents the rationale supporting routine *vs.* selective screening for AsxCS. Paraskevas *et al.*[19] present the various technological advances that will aid early diagnosis and optimal management of patients with AsxCS in the future (*e.g.*, nanoplastics/microplastics, digital twins for personalized monitoring, electronic tattoos for continuous non-invasive monitoring, and others).Finally, Accarino *et al.*[20] discuss the effect of female sex on outcomes in patients with SxCS.

The authors sincerely hope that the readers of the Journal will enjoy this collection of articles, covering several contemporary 'hot' topics in the diagnosis, prevention and treatment of patients with AsxCS or SxCS.

References

1. AbuRahma A. An algorithmic approach to patient-specific treatment: medical management, carotid endarterectomy, carotid artery stenting and transcarotid artery revascularization. Int Angiol 2025;44:195–202.

2. Crisostomo P, Pinto Rodriguez P, Khan N, Liu A, Flanagan S, Yuan K, *et al.* The rising utilization and associated outcomes of transcarotid arterial revascularization. Int Angiol 2025;44:212–23.

3. Jothi AA, Gadi N, Davies AH, Thapar A. Systematic review of contemporary outcomes for medical management of symptomatic patients with moderate to severe carotid stenosis. Int Angiol 2025;44:183–8.

4. Coelho A, Peixoto J, Mansilha A. Potential impact of artificial intelligence in predicting cerebrovascular events in patients with carotid artery stenosis. Int Angiol 2025;44:189–94.

5. Breault R, Eskandari M, Wallace G. Technical considerations for reconstruction of extracranial carotid artery redundancy concurrent with endarterectomy. Int Angiol 2025;44:263–70.

6. Paraskevas KI, Saba L, Perler BA, AbuRahma A, Sultan S, Meschia JF, *et al.* High-risk carotid plaque features may be more accurate predictors of ipsilateral ischemic stroke risk than the degree of carotid artery stenosis. Int Angiol 2025;44:224–34.

7. Park J, Schermerhorn ML. Outcomes of carotid revascularization procedures in symptomatic patients according to preoperative symptoms, timing from symptoms, and modified Rankin Scale Score. Int Angiol 2025;44:245–53.

8. Pitha J. How to reach optimal cardiovascular risk profile in carotid artery stenosis. Int Angiol 2025;44:235–44.

9. Bruno S, Mirabella D, Dinotto E, Pecoraro F. Mid-term outcomes of endovascular treatment for internal carotid artery dissection. Int Angiol 2025;44:323–9.

10. Ho B, Lazcano-Etchebarne C, Schwartz A, Bai H, Ohashi Y, Dardik A. Hemodynamics in carotid artery stenosis. Int Angiol 2025;44:271–82.

11. Casella I, Bergantini Neto H, Texeira E, Monteiro J, Constantin B, Francolin P, *et al.* Role of carotid plaque analysis in therapeutic decision-making for carotid disease. Int Angiol 2025;44:283–90.

12. Svetlikov AV, Shapovalov AS, Pigarevsky PV, Maltseva SV, Lukin SV, Gurevich VS. The role of *vasa vasorum* in carotid stenosis. Int Angiol 2025;44:203–11.

13. Santoro F, Sferruzzi M, Montelione N, Catanese V, Calandrelli R, Spinelli F, *et al.* Urgent management of symptomatic carotid artery stenosis: a critical review of the literature. Int Angiol 2025;44:330–40.

14. Prentzas N, Skouteli C, Kyriacou E, Griffin M, Loizou C, Kakas A, *et al.* Explainable artificial intelligence in the prediction of high-risk asymptomatic carotid plaques based on ultrasonic image features. Int Angiol 2025;44:291–300.

15. Liapis CD, Tzavellas G. The role of transcarotid artery revascularization in symptomatic carotid stenosis. Int Angiol 2025;44:316–22.

16. Migdalski A, Jawien A. Conversion to carotid artery stenting after neurological intolerance at cross-clamping during carotid endarterectomy: is it a safe option? Int Angiol 2025;44:311–5.

17. Nicolaides AN, Panayiotou A, Griffin M, Tyllis T, Kyriacou E, Avramides C, *et al.* Performance of the Prevalence of Asymptomatic Carotid Artery Stenosis Risk Score in the cohort of the Cyprus Epidemiological Study on Atherosclerosis. Int Angiol 2025;44:301–10.

18. Perler BA. Screening for asymptomatic carotid stenosis: routine or selective? Int Angiol 2025;44:169–74.

19. Paraskevas KI, Sultan SA, Aburahma AF, Moore WS, Blecha M, Myrcha P, *et al.* The future in the management of patients with asymptomatic carotid artery stenosis. Int Angiol 2025;44:175–82.

20. Accarino G, Lanza G, Bracale UM, Lanza J, Colonna G, Taurino M, *et al.* Female sex and outcomes of symptomatic carotid stenosis revascularization. Int Angiol 2025;44:255–62.

Conflicts of interest
Michael C. Stoner has a consultant agreement with Boston Scientific. Mahmoud B. Malas is a Consultant to Cordis and Bard. Peter A. Schneider is a consultant to Surmodics, Medtronic, Boston Scientific, Cagent, Acotec, Abbott, Endologix, Shockwave, Healthcare Inroads, Inari and BD. Mark K. Eskandari is a paid consultant for W.L. Gore and Silkroad Medical (Boston Scientific). Meghan Dermody is a consultant/speaker for Boston Scientific Vascular and Medtronic Aortic. Piotr Musialek has served as Co-principal Investigator in the CGUARDIANS FDA-IDE and in the CARENET Trial and as Principal Investigator in the PARADIGM/PARADIGM-Extend, FLOWGUARD, OPTIMA, TOPGUARD, and SAFEGUARD-STROKE Investigator-Initiated Carotid Trials. He has served on the European Society of Cardiology Research and Grants Committee and Congress Program Committee, and is a voting member of the ESC WG CARE. He is also a Member of the EuroPCR VITAL and EuroPCR Program Producer and Session Evaluator. He is co-Director for the ICCA/Stroke Meeting. He is a Proctor and/or consultant for Abbott Vascular, Balton, Gore, InspireMD, and Medtronic. He has received research grants from the National Center for Science (Poland), Polish Committee for Scientific Research, Polish Cardiac Society, and the Jagiellonian University Medical College. CArotid Revascularization systematic reviews and MEta-aNalyses (CARMEN) Collaboration. He is the Polish Cardiac Society Board Representative for Stroke and Vascular Interventions. He is also in the Steering Committee of Medtronic SHIELD study. Marc L. Schermerhorn is PI for Medtronic, Boston Scientific and Shape clinical trials. He also does research with Cook, Terumo and Gore. Lyden is a Consultant for BD, Boston Scientific, Contego Medical, Cordis, Endologix, Inspire MD, Medtronic, Rapid Medical, Shockwave, Penumbra, Vivasure and Nectero. He has stock options in Inspire MD, Reva Medical and Centerline Biomedical. He is a Board Member for VIVA Physicians. He has performed Research Studies for Abbott, Endologix, Surmodics, W.L. Gore, Terumo Aortic, NIH, Boston Scientific, Merit, Contego Medical, Inspire MD, Reva Medical, Penumbra, Medalliance and Nectero. The other authors have no conflicts of interest.

Authors' contributions
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