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Avanços no Diagnóstico, Tratamento e Prognóstico da Doença Aortoilíaca / Advances in Diagnosis, Treatment and Prognostication in Aortoiliac Occlusive Disease

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Advances in Diagnosis, Treatment and Prognostication in Aortoiliac Occlusive Disease

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UC Dissertação - DECLARAÇÃO DE TRANSPARÊNCIA RELATIVAMENTE À UTILIZAÇÃO DE FERRAMENTAS DE CHATBOT GENERATIVO BASEADAS EM LARGE LANGUAGE MODELS

Eu, Maria José Ferreira Azevedo, abaixo assinado, nº mecanográfico 201706587, estudante do 6º ano do Ciclo de Estudos Integrado em Medicina, na Faculdade de Medicina da Universidade do Porto, declaro que:

☒ Não procedi à utilização de ferramentas de *chatbox* generativo baseadas em *large language models* para nenhuma das tarefas no contexto do meu trabalho de Dissertação ou Monografia

☐ Procedi à utilização de ferramentas de *chatbox* generativo baseadas em *large language models* no contexto do meu trabalho de Dissertação ou Monografia, encontrando-se todas as interacções (*prompts* e respostas) transcritas em anexo bem como a indicação das aplicações utilizadas.

Neste sentido, confirmo que a eventual utilização de ferramentas de *chatbox* generativo baseadas em *large language models* no contexto do meu trabalho de Dissertação ou Monografia foi exclusivamente descrita na sequência de *prompts* e respostas transcritos em anexo e nas aplicações indicadas.

Faculdade de Medicina da Universidade do Porto, 30/06/2024

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TITLE

Advances in Diagnosis, Treatment, and Prognostication in Aortoiliac Occlusive Disease

KEYWORDS

Aortoiliac stenting; perioperative care; Arterial Occlusive Diseases* / diagnostic imaging; Arterial Occlusive Diseases* / surgery; Iliac Artery / diagnostic imaging; Iliac Artery / surgery; Stents

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ABSTRACT

Background: Aortoiliac disease (AID) is a variant of peripheral artery disease affecting the infrarenal aorta and iliac arteries. Similar to other arterial diseases, aortoiliac disease obstructs blood flow to distal organs through narrowed lumens or by embolization of plaques. AID, when symptomatic, classically presents with a triad of claudication, impotence, and absence of femoral pulses, a triad also referred as Leriche Syndrome (LS).

Objective: The authors aim to review the available evidence on the management of the aortoiliac occlusive disease and describe its clinical characteristics, diagnosis and treatment management.

Methods: A comprehensive review of the literature was carried out to collate data from relevant studies concerning patients with moderate to severe symptomatic aortic occlusive disease. The data was identified by a search using PubMed and Google Scholar with the keywords / MESH terms "aortoiliac occlusive disease". For this study, the authors focused on publications in the past two decades, using English publications.

Results: The diagnosis and evaluation of extensive aortoiliac disease involves several important considerations: vascular imaging plays a fundamental role in confirming the diagnosis of peripheral arterial disease (PAD), evaluating the severity and extent of the disease and not directing the planning of revascularization procedures. It provides essential information to select the most appropriate treatment modality.

Conclusion: Even with revascularization, patients are at high risk of mortality and numerous life-threatening complications. Clinical and imagiologic factors may be used for risk stratification in order to select appropriate patients for revascularization and to better counsel patients about expected postoperative outcomes.

INTRODUCTION

Aortoiliac disease (AID) is a variant of peripheral artery disease (PAD) affecting the infrarenal aorta and iliac arteries.

Severe aortoiliac stenosis or occlusion is often a chronic disease resulting from progressive atherosclerotic and thrombotic accumulation. While acute occlusions of the native aortoiliac system can occur, they are uncommon and a very different disease process associated with high morbidity and mortality [1, 2]. The management of these often critically ill patients is separate from the chronic setting. Chronic occlusions, however, progressively impair direct inflow to the pelvis and lower extremities. The chronicity of this process leads to the development of extensive collateral networks involving systemic pathways via the lumbar, intercostal, epigastric and circumflex iliac vessels, as well as visceral–systemic pathways through branches of the celiac, superior and inferior mesenteric arteries [3]. These collaterals allow many patients to present with significantly less severe symptoms than expected from such an advanced disease process.

Clinical indications for intervention include life-limiting claudication, rest pain and tissue loss. Less commonly, patients may be treated following atheroembolism from the aortic or iliac lesions, most often presenting with acute limb ischemia or 'blue toe syndrome'. Approximately 45–65% of patients with AID present with claudication of the buttocks, thighs and calves [4, 5, 6, 7, 8]. The classic triad of claudication of the buttock and thighs, absent femoral pulses and impotence described by Leriche, also referred as Leriche Syndrome (LS), is noted in as many as 73% of men with AID [9]. More severe symptoms of critical limb ischemia with rest pain or tissue loss are somewhat less common due to collateralization; however, when present, they often suggest extensive iliac and infrainguinal vessel involvement. Acute worsening or onset of symptoms can develop following thrombosis of chronically diseased vessels or an embolic event.

The extent and localization of atherosclerotic occlusions relative to these arteries determine the Trans-Atlantic Inter-Society Consensus (TASC) II classification of the disease [10]. Patients with AID are primarily treated with endovascular procedures, exception made for advanced TASC II type D lesions where open surgery is still the standard in many centers. Although the mid- and long-term patency of the endovascular procedures and the aortobifemoral bypass are comparable, the endovascular treatment option is preferred due to its minimally invasive nature and significantly lower peri-procedural morbidity [11, 12]. However, in case of unsuccessful endovascular treatment, atherosclerotic lesions not amenable for an endovascular procedure, or in young patients with acceptable risk of perioperative complications, open aortobifemoral bypass is the preferred treatment option [11].

Laparoscopic aortobifemoral bypass surgery for treating patients with advanced PAD has been established in dedicated centers. New treatment modalities should not only be evaluated in terms of patency, complications, and long-term results but also with quality of life (QoL) assessments. Patients with PAD have been shown to have a reduced health-related quality of life (HRQoL) [13].

Patient-reported outcome measurements (PROMs) are essential tools in evaluating outcomes of different treatment methods in patients with QoL affection like in PAD. Additionally, these tools provide essential information to the health providers and the taxpayers for assessing health services [13].

The objectives of this work are to revise various aspects of AID, from staging and diagnosis to pharmacological and surgical treatment approaches, and overall healthcare quality.

METHODS

A comprehensive review of the literature was carried out to collate data from relevant studies concerning patients with moderate to severe symptomatic aortic occlusive disease. The data was identified by a search using PubMed and Google Scholar with the keywords / MESH terms "aortoiliac occlusive disease". For this study, the authors focused on publications in the past two decades, using English publications.

RESULTS

Diagnosis and Assessment of Extensive Aortoiliac Disease:

Vascular imaging confirms the diagnosis of PAD, assesses the severity and extent of disease, and is also used to plan and guide revascularization. Complementary means of diagnosis can provide additional information that may be important in choosing the best treatment modality.

Identifying high risk patients is an important step in the decision process of whether a patient would benefit from an intervention or even if there is any sarcopenic reversibility and preoperative optimization that can be provided. However, the ongoing research and subsequent clinical utility is being challenged by different definitions and the still undisclosed optimal frailty tool to use in vascular surgery and its subpopulations.

In a prospective single center series of aortoiliac TASC D revascularization, envolving 57 patients with a mean age 60±8.2 years; range, the Psoas Muscle Area (PMA) was used as a threshold value. Cox proportional hazards modeling was used to estimate covariate association with all-cause mortality and indicated that the overall psoas area proved to be a prognostic indicator for both survival and significant adverse cardiovascular [14]. Additionally, it facilitated a swift and precise evaluation with consistent results. In vascular surgery settings, frailty and sarcopenia have been accepted as useful prognostic tools to evaluate patients' characteristics before surgery, as these may predict perioperative clinical and surgical outcomes. Although minimally invasive

surgical approaches, such as endovascular therapy, and hybrid approaches have been universally developed, achieving good surgical outcomes for high-risk cohorts remains a challenge due to the increasing prevalence of elderly patients with multiple comorbidities in addition to frailty and sarcopenia.

Haematological parameters, such as the red blood cell distribution width (RDW), have recently been emerging as a tool to help predict patient outcomes [15]. RDW-CV is a widely available, easy to measure, and low-cost marker that independently predicts long-term mortality, MACE, and MI after aortoiliac revascularization. Even though the mechanisms underlying these associations are not yet fully understood, this factor could prove useful in assessing which patients would likely benefit from aortoiliac revascularization in the long term. Future research on this parameter should focus on a possible molecular basis, and interactions with inflammatory pathways, in order to shed light on the pathophysiologic mechanisms [15].

Long-term prognosis of patients with extensive aortoiliac disease:

Cardiovascular diseases are associated with a wide range of risk factors, including aging. This combination is a common trait in many vascular surgery patients and can lead to frailty. One possible definition for frailty is a physiologic decline associated with aging, vulnerability to adverse events and poor prognosis [16]. Frailty has been associated with short- and long-term mortality after major vascular surgery in elderly patients. Furthermore, it can also lead to an increase in health care costs for surgical patients [16].

First, risk factors must be identified and aggressively treated. The two most important are cigarette smoking and diabetes. Complete cessation of smoking is mandatory. Serum glicose must be regulated; the goal is a glycosylated hemoglobin (HbA1c) level below 7%. The goal of hypertension control should be blood pressures lower than 140/90 mmHg. The low-density lipoprotein (LDL) cholesterol level should be

brought below 100 mg/dL, usually with hepatic 3-methylglutaryl coenzyme A (HMG CoA) reductase inhibitors (statins). In addition to modification of risk factors, patients with AID should receive lifelong antiplatelet therapy to reduce the risk of MI, stroke, and vascular death [17].

Hyperglycemia promotes atherosclerosis due to diverse mechanisms such as oxidative stress, advanced glycation end products (AGEs), and Protein Kinase C. Oxidative stress leads to atherosclerosis mainly due to mitochondrial mechanisms in which hyperglycemia metabolism leads to reduction of NADPH and activation of NADPH-oxidase which contributes to oxidative stress. Finally, hyperglycemia leads to activation of diacylglycerol (DAG) which promotes the development of atherosclerosis by activating the pathway of Protein Kinase C [8]. Although it is unknown whether aggressive serum glucose control decreases the likelihood of adverse cardiovascular events among patients with PAD and Diabetes Melitus (DM), treatment of DM can be effective for reducing complications. Recommendations for control of blood glucose levels with an HbA1c goal <7.0 % seem reasonable. Less stringent goals may be appropriate for some patients (eg, older patients, and those with multiple comorbid medical conditions) [18].

Hypertension is also a major risk factor for PAD. However, there are no data evaluating whether antihypertensive therapy alters the progression of PAD. In the EUCLID trial, poor blood pressure control and high systolic blood pressure were associated with worse limb outcomes. Nevertheless, hypertension should be controlled to reduce morbidity from cardiovascular and cerebrovascular disease [19, 20].

Revascularization Procedures:

Open surgery procedure remains the method of choice for young patients, fit for surgery, with AID. However, aortobifemoral (ABF) grafting is associated with a 3% to

5% risk of operative mortality, relevant perioperative morbidity, and a delay in the return to normal routine [11].

Various techniques have been described for a successful endovascular revascularization of AID [21] (Figures 1,2). The overall volume of endovascular procedures has increased significantly among patients with DM and foot ulcer, while open surgical bypass has decreased [22]. Among patients undergoing lower extremity revascularization, prevalent DM is an independent risk factor for major limb amputation and six-month hospital readmission [23]. Based upon the available data comparing outcomes in patients with and without DM, there does not appear to be any obvious subset of patients with DM for whom revascularization strategies should differ.

The Global Vascular Guidelines for the management of chronic limb-threatening ischemia (CLTI) provide a framework for evidence-based lower extremity revascularization, including recommendations for endovascular intervention or lower extremity surgical bypass. Endovascular treatment is preferably recommended for aortoiliac arterial injuries classified as type A, B and C in the TASC II classification [24, 25].

Performing prophylactic intervention, whether percutaneous or surgical, in patients with minimal claudication provides little benefit, may cause harm, and is not recommended. For those with significant or disabling symptoms of claudication unresponsive to lifestyle adjustment and pharmacologic therapy, intervention may be reasonable. For patients with chronic limb-threatening ischemia (eg, rest pain, ulceration), revascularization is a priority to improve arterial blood flow [26]. Some patients with acute thrombosis superimposed on chronic stenosis or occlusion (ie, acute-on-chronic ischemia) may benefit from thrombolytic therapy. For patients with chronic limb-threatening ischemia, the Society for Vascular Surgery (SVS) WIfI Classification is recommended to initially stage the limb and to assess the response to therapy. In the

absence of limb-threatening ischemia, symptoms of PAD tend to remain stable with medical therapy [27].

Among patients with indications for revascularization, options include percutaneous intervention, surgical bypass, or a combination (hybrid approach) of these. The choice depends upon the level of obstruction, severity of disease, the patient's risk for the intervention, and the goals for care. For patients with lesions that have anatomic features associated with durable clinical success with a percutaneous approach (single, short segment, uniform), guidelines suggest an initial attempt at percutaneous revascularization rather than initial surgical revascularization [18].

Following revascularization, periodic clinical evaluation and postprocedure surveillance help identify problems that can contribute to loss of patency and potentially limb loss. The surveillance schedule depends on the type of intervention.

One study reported that the incidence of myocardial injury after non-cardiac surgery was 25.8% after revascularization of aortoiliac TASC D lesions and chronic heart failure was associated with the presence of myocardial injury after non-cardiac surgery. In addition, myocardial injury after aortoiliac revascularization was a strong predictor of further myocardial infarction, stroke, acute heart failure, major adverse cardiovascular events, major adverse limb events, and all-cause mortality at a one-year follow-up [28].

Supervised exercise programs have been recommended as first line therapy for treatment of claudication. Exercise programs combined with risk factor modification offer the possibility of altering the clinical trajectory of PAD. The goals of comprehensive prevention strategies including exercise are threefold: 1) to reduce limb symptoms; 2) to improve exercise capacity and prevent or lessen physical disability; and 3) to decrease the occurrence of cardiovascular events [29].

In summary, technological advancements in the percutaneous treatment of PAD have enabled interventions to successfully treat more complex arterial lesions. Despite

documented limitations in the technical parameter of arterial patency, excellent functional outcomes with quality-of-life assessment are attainable with PTA. This is particularly true in patients with claudication [30].

Role of Drug Therapy:

Recent observational studies confirmed that statins are effective and safe in both low and high-risk patients with PAD and offer additional benefits at high-intensity doses. Although these studies differed in study design and sample composition, they arrived at similar conclusions comparable to findings from randomized controlled trials [31]. Also, in a subgroup analysis of a meta-analysis of 46 studies involving patients undergoing lower extremity revascularization, statins were associated with improved primary and secondary patency rates and significantly decreased amputation rates [32]. There is some evidence to suggest that the rate of restenosis/reocclusion following peripheral endovascular treatment is reduced with the use of antiplatelet drugs compared with placebo [33], but the available trials are small and of variable quality [34, 35, 36]. Guidelines and prescribing practices vary widely [34, 36, 37]. In the absence of high-quality data, the recommendations are for giving patients aspirin (<325 mg/day) plus clopidogrel (75 mg/day) for one to three months, followed by lifelong aspirin (for ongoing secondary prevention of future cardiovascular events). Based on data from the coronary literature, patients who receive a drug-eluting stent should receive clopidogrel for a longer period (3 to 12 months) [38].

New Pharmacological treatment strategies:

Cardiovascular outcomes trials with two new classes of agents, the sodium-glucose co-transporter 2 inhibitors (SGLT2-i) and glucagon-like peptide-1 receptor agonists (GLP1-RA), have demonstrated reductions in cardiovascular events, including

mortality, primarily for patients with DM and cardiovascular disease. In preclinical models, GLP1-RAs lowered vascular expression of proinflammatory pathways, improved endothelial function, and inhibited platelet aggregation and atherosclerosis.

Semaglutide and liraglutide are GLP-1 analogues. In patients with type 2 DM at high cardiovascular risk, semaglutide significantly reduced the rate of major adverse cardiovascular events (MACE) compared with placebo in the SUSTAIN 6 trial [(39)]. Data presented from subgroup analyses from LEADER (placebo-controlled trial of liraglutide) and SUSTAIN 6 have demonstrated reductions in cardiovascular events associated with GLP-1 analogues in patients with and without PAD [(40)]. With respect to limb-specific outcomes, treatment with liraglutide in patients with DM at high cardiovascular risk was associated with a significant reduction in diabetic foot ulcer-related amputations compared with placebo [(41)]. The STRIDE trial of 800 participants randomized to semaglutide versus placebo is underway to determine whether semaglutide has any benefits for walking ability in those with diabetes and PAD (clinicaltrials.gov: NCT04560998).

Cardiovascular outcomes trials for both SGLT2-i and GLP1-RA have included DM patients with PAD [(42)]. In patients with PAD at baseline, empaglifozin reduced cardiovascular death by 43%, all-cause mortality by 38%, and incident or worsening nephropathy by 46% versus placebo, consisting in patients without PAD [(43)].

Impact of Endovascular Intervention:

Endovascular treatment of extensive AID is performed safely and effectively in multiple centers worldwide. In the hands of experienced interventionists, technical success rates are high with modest morbidity. Although primary patency rates of endovascular techniques were inferior to those of open revascularization, reinterventions could often be performed percutaneously [(44)]. Secondary patency rates are comparable to

surgical repair, but length of follow-up after endovascular techniques is still limited. Nevertheless, with continuing developments in endovascular techniques and devices as well as growing experience of interventionalists, indications for endovascular treatment of extensive AID will keep broadening [45].

Among the 1 to 2 percent of patients who develop chronic limb-threatening ischemia, outcomes have improved over time, related to improved medical management [46, 47], and possibly the more liberal use of endovascular intervention [48]. Even among those without a revascularization option, amputation-free survival has improved [49]. Overall, at one year, 45 percent of patients will be alive with both limbs, 30 percent will have undergone amputation, and 25 percent will have died. At five years, more than 60 percent of patients with CLTI will have died. For patients with nonreconstructible disease at one year, approximately 55 percent will be alive without amputation (range 40 to 69 percent); 20 percent of patients will have died (range: 12 to 32 percent), and 34 percent will have undergone major amputation (range: 25 to 45 percent) [18].

These general estimates do not apply equally to all patients. Atherosclerotic vascular disease tends to be more aggressive in patients with DM and lower extremity PAD with amputation rates that are higher compared with patients with PAD who do not have DM [19]. Sensory neuropathy and increased susceptibility to infection contribute to the increased amputation rate. The prognosis for both limb loss and survival is significantly worse in patients with DM and end-stage kidney disease, and those who continue to smoke [50].

There are numerous future streams of research aimed at improving the contemporary management of AID, themed around pre-operative planning, procedural techniques, and postoperative care. In the planning stage, research on the construction of pre-operative risk-prediction models specific to AID may improve clinical decision-making on patient selection and treatment modality. Timely and reliable patient

stratification of anesthetic and surgical risk may help individualized pre-habilitation therapies designed to optimize patients for surgery.

Procedural research will likely be focused on improving current stent technology and testing the applicability of previously described treatment adjuncts. There is also a focus on reducing procedural radiation using new technology. Crucially, an area needing to be addressed is the need for prospective and randomized-control studies on the management of AID. A recently approved National Institute for Health and Care Research (NIHR) funded UK-based randomised controlled trial (the EVOCC trial) comparing endovascular versus open management of AID is entering its pilot phase. With the hope of recruiting over 600 patients over a period of 30 months to achieve an adequately powered comparison of the two techniques on amputation-free survival, this trial will be the first prospective trial of its kind in this anatomical area.

CONCLUSION

AID remains a challenging area of PAD to treat. AID is frequently associated with multi-level disease and these patients commonly accumulate from significant comorbidities. Therefore, to further improve clinical and surgical outcomes, these preoperative geriatric prognostic factors will be of great importance and interest in vascular settings for both physicians and surgeons.

The literature on QoL for patients with advanced PAD is sparse, and especially, long-time follow-up studies assessing QoL and disease specific QoL are lacking. The evidence available on open and endovascular outcomes has often been of low quality due to small subject numbers and heterogeneity of presentations and interventions. From the patient's perspective, changes in the physical domains of a QoL tool after a treatment serve as a direct measure of the treatment effect.

Endovascular procedures offer significant advantages, including reduced invasiveness, lower complication rates, shorter hospital stays, and lower costs, with short-term outcomes comparable to open surgery. Conversely, open surgery boasts higher technical success rates and is not constrained by prior endovascular attempts. Consequently, there's a growing trend towards adopting an "endovascular-first" strategy for severe aortoiliac disease.

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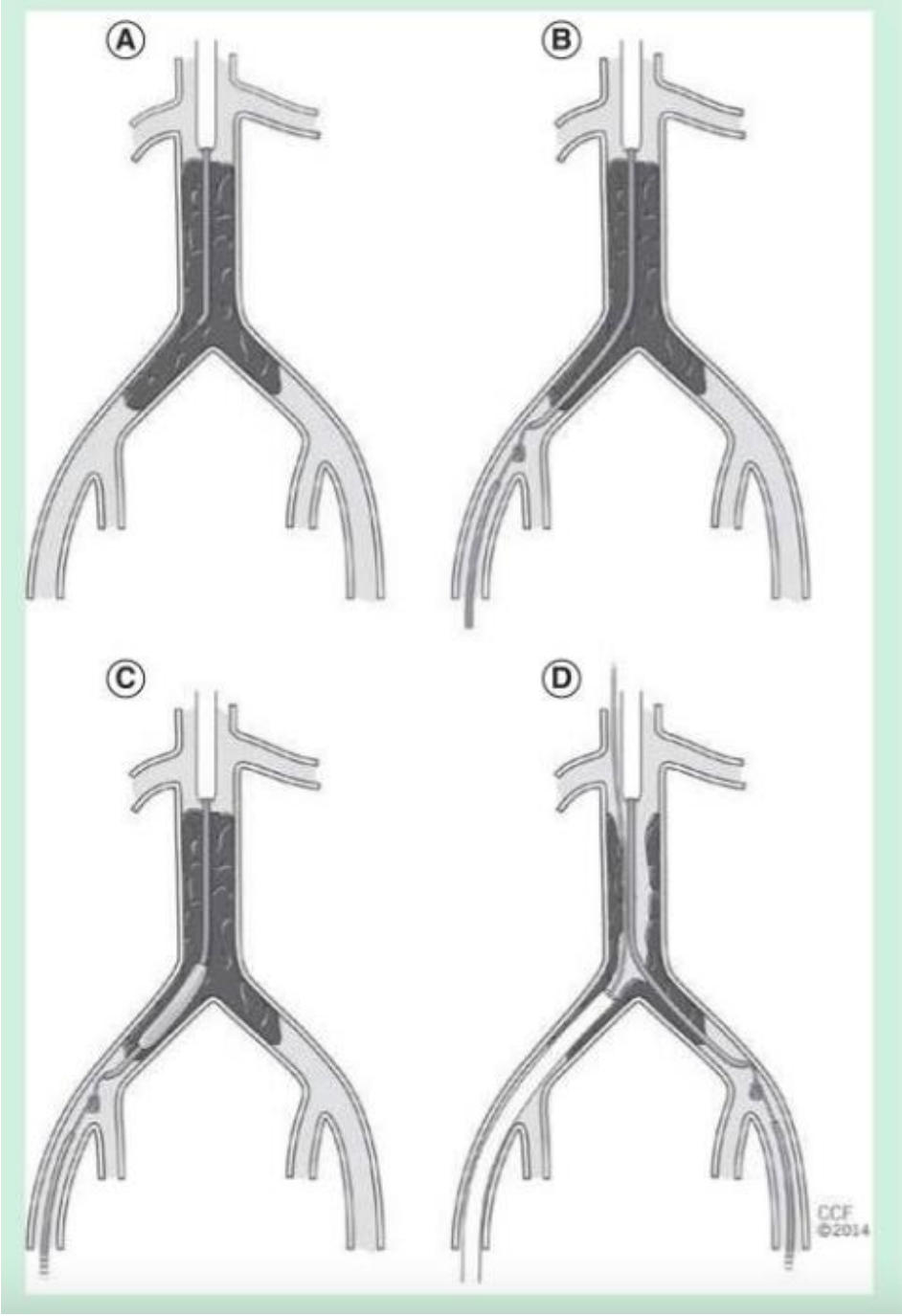
Figure 1:

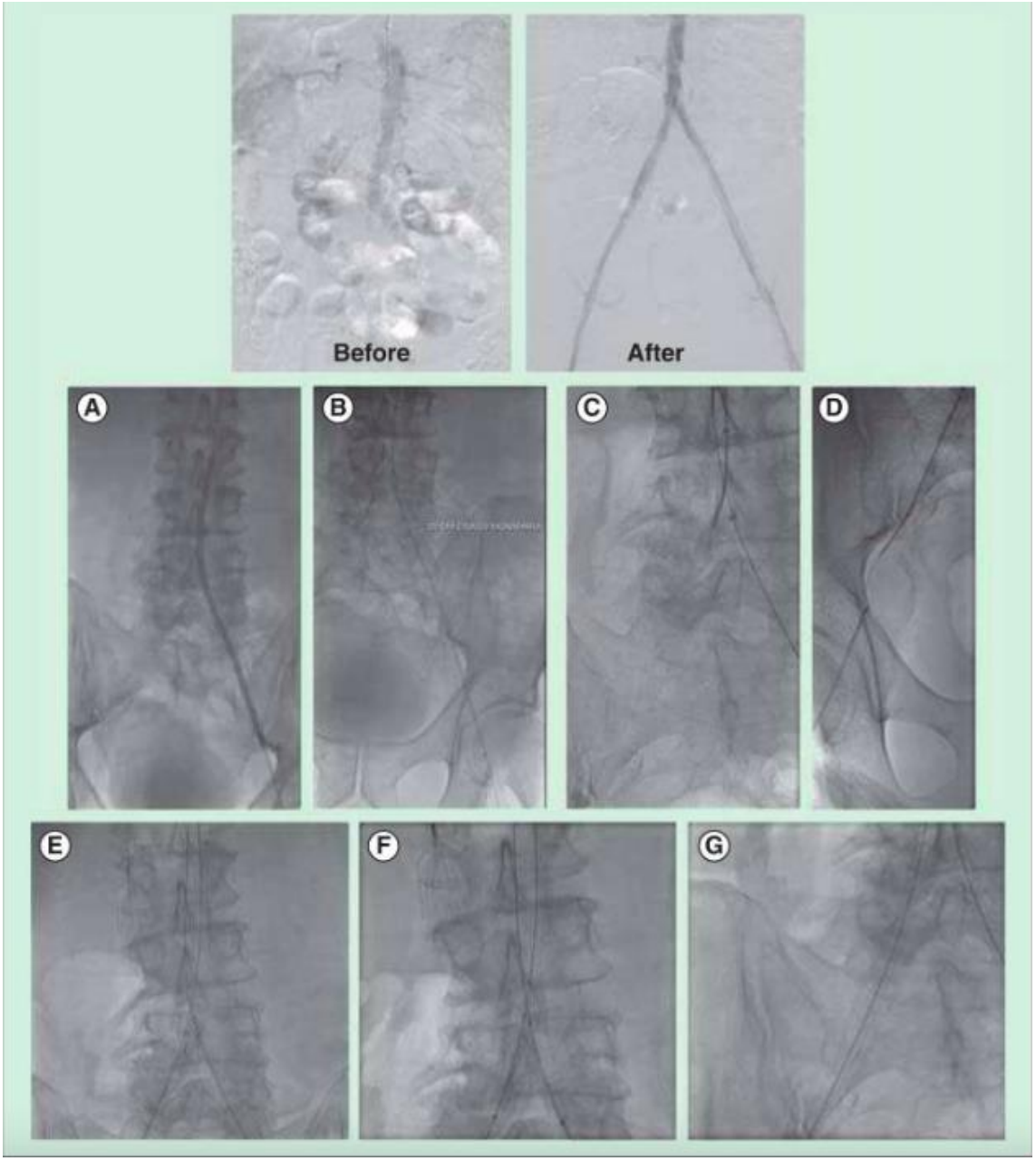


Representation of technique for crossing aortic occlusion and preparing for treatment

(A) From the brachial approach, the sheath is advanced to the proximal edge of the occlusion and the wire is drilled through the occlusion with progressive advancement of the catheter. **(B)** After crossing the lesion, femoral access is obtained and the wire is

snared to obtain through-and-through access. **(C)** A small angioplasty balloon is used to dilate the occlusion prior to sheath advancement. **(D)** The same technique is used on the contralateral side, followed by advancement of sheaths to the aortic bifurcation from the femoral arteries (1).

Figure 2:



Endovascular intervention of patient with infrarenal aortic and iliac occlusions

(A) Initial flow channel with angioplasty balloon created after crossing lesion. **(B)** Lysis catheter in place through occlusion in aorta and left iliac artery. **(C)** Attempt at crossing right iliac occlusion by drilling wire and subsequent advancement of the sheath. **(D)** Snaring the wire after crossing the lesion to obtain brachial and femoral access. **(E)** Advancement of bilateral sheaths to the bifurcation. **(F)** Placement of an aortic and bilateral 'kissing' common iliac stents. **(G)** Treatment of remaining common

and external iliac artery with self-expanding stents. At completion, the aorta and bilateral iliac arteries are patent without significant stenosis (1).

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Author Guidelines

A - Editorial policies

Objectives and Scope

The journal of the Sociedade Portuguesa de Cirurgia Cárdio-Torácica e Vascular was founded in 1991 and represents an official body of the now renamed Sociedade Portuguesa de Cirurgia Cardíaca Torácica e Vascular (SPCCTV). The main objective of the SPCCTV's Journal is to publish high quality papers in the areas of Cardiac, Thoracic and Vascular Surgery.

The second objective of the SPCCTV's Journal is to facilitate and stimulate discussion and information sharing, as much as ethical, economic and social questions related to Cardiac, Thoracic and Vascular Surgery, constituting a forum for divulging progress in all areas related to the three specialties.

The SPCCTV's journal is published every three months in an electronic version, with the published articles available online. All the papers of the SPCCTV's Journal are published as Open Access, with no associated processing fees, thanks to the support of the Sociedade Portuguesa de Cirurgia Cardíaca Torácica e Vascular.

The rigor and accuracy of the results published in the SPCCTV's journal, as much as the opinions expressed, are an exclusive responsibility of the authors.

Editorial Freedom

The SPCCTV's journal adopts the ICMJE's definition of editorial freedom, described by the World Association of Medical Editors, which states that the editor-in-chief assumes complete authority over the editorial content of the journal. The Sociedade Portuguesa de Cirurgia Cardíaca Torácica e vascular, as owner of the SPCCTV's Journal, does not interfere in the process of any manuscript's evaluation, selection, programming or editing. The journal is an autonomous body of the SPCCTV, and the editor-in-chief and associated editors have complete editorial independence.

General view

The Portuguese Journal of Cardiac Thoracic and Vascular Surgery is ruled by the norms of biomedical editions developed by the International Committee of Medical Journal Editors (ICMJE), available at: http://www.ICMJE.org, and by the Committee on Publications Ethics (COPE).

The editorial policy of the Portuguese Journal of Cardiac Thoracic and Vascular Surgery integrates the Editorial Policy Statements issued by the Council of Science Editors into the review and publication process, covering the responsibilities and rights of editors of scientific mediated Journals.

(http://www.councilscienceeditors.org/i4a/pages/index.cfm?pageid=3331).

Guidelines for Study Presentation

Papers should be prepared according to the norms of the International Committee of Medical Journals Editors: Recommendations for the Conduct, Reporting, Editing and

Publication of Scholarly Work in Medical Journals (ICMJE Recommendation) available at http://www.icmje.org/recommendations/

The Portuguese Journal of Cardiac Thoracic and Vascular Surgery recommends the guidelines for publication of the EQUATOR network (http://www.equator-network.org). Check lists are available for several study designs, including:

- Randomized controlled trials (CONSORT) - http://www.consort-statement.org/
- Systematic reviews and meta-analyses (PRISMA and extensions) - http://prisma-statement.org/
- Observational studies (STROBE) - https://www.bmj.com/content/335/7624/806
- Case reports (CARE) - https://www.care-statement.org/
- Qualitative research (COREQ) - http://cdn.elsevier.com/promis_misc/ISSM_COREQ_Checklist.pdf
- Diagnostic/prognostic studies (STARD) - https://www.equator-network.org/wp-content/uploads/2015/03/STARD-2015-checklist.pdf
- Economic evaluations (CHEERS) - https://www.equator-network.org/wp-content/uploads/2013/04/Revised-CHEERS-Checklist-Oct13.pdf
- Pre-clinical animal studies (ARRIVE)–https://arriveguidelines.org/arrive-guidelines
- Guidelines (GRADE) - https://pubmed.ncbi.nlm.nih.gov/21185693/
- Clinical protocols (SPIRIT) - https://www.spirit-statement.org/

Acceptance criteria for all papers are investigation quality and originality and its meaning to the Portuguese Journal of Cardiac Thoracic and Vascular Surgery readers. Except when duly mentioned, all manuscripts are submitted to double blind peer review

process by at least two anonymous reviewers. Final acceptance or rejection falls to the Editor-in-chief, who reserves the right to refuse any publication material, after consulting the Associated Editors.

Manuscripts must be written in a clear, concise and direct style, to be understandable to the readers. When the contributions are considered adequate for publication based on the scientific content, Editors reserve the right to modify the text to eliminate ambiguity and repetition, and improve the communication between the author and the reader. If extensive changes are required, the manuscript will be returned to the author for revision.

The manuscripts that do not comply with the instructions to authors will be returned for remaking before being reviewed.

Criteria of Authorship and Authorship Form

As referred in the Requirements ICMJE, authorship requires a substantial contribution to the manuscript. The presentation letter should specify each author's contribution to the final paper.

Individual author contribution statement

All those designated as authors must meet the four authorship criteria described below, and all those who fulfill all four criteria must be identified as authors. The contributors, who do not fill the four authorship criteria, must be referred in the acknowledgement section, specifying their contribution.

Each manuscript must have a “corresponding author” to whom all questions referring the theoretical content will be addressed. However, all authors must take public responsibility over the content.

Authorship criteria:

- Have a substantial intellectual direct contribution in the design and writing of the paper;
- Participated in data analysis and interpretation
- Participated in manuscript writhing, reviewing, critical revision of the content and approval of the final version.
- Agree to assume responsibility over the accuracy and integrity of the entire process

Besides being responsible for part of the work, an author must be able to identify which coauthors were responsible for specific contributions. Funding, data collection or general supervision of the work group, by itself, does not qualify as authorship.

Group authorship

When a large group of authors produces a paper, this group must decide, in the beginning who will be the listed authors of the manuscript submitted for publication. All group members listed as authors must meet the four authorship criteria – including approval of the final version of the manuscript – and should be able to take public responsibility over the full content done by the other authors. Some groups, especially when numerous, attribute authorship of the study to the group name, listing or not individual names. When submitting a manuscript whose authorship is a group, the

corresponding author must specify the name of the group, if it exists, and clearly identify which group members can claim credit and assume responsibility over the paper as authors. When authors publish on behalf of a group, group members must be listed in appendix.

If a medical writer was involved in writhing the manuscript, a signed statement by the corresponding author is necessary, indicating the name and whether there was funding of this person. This information must be added in the acknowledgments section. A signed statement by the medical writer allowing to be mentioned in the acknowledgments section must be provided.

Changes in authorship

It is expected that the authors carefully consider the list of authors prior to submission. The authors must determine among themselves the order by which they appear and resolve any disagreement before submitting their manuscripts for publication. Changes in authorship (either in order or number of authors) must be discussed and approved by all authors. Any change in number or name of the authors must be accomplished before acceptance by the journal editor. To require the change a communication by the corresponding author must be received mentioning: a) the reason for authorship change, b) written consent by all authors. Only in exceptional conditions, will the editor accept changes in authorship after paper acceptance.

Corresponding Author Role

The corresponding author will act on behalf of all co-authors as the preferred contact for the editorial team during the submission and review process.

The corresponding author on behalf of all co-authors is responsible for communication with the journal during the submission, peer review and publication process. He is also responsible for ensuring all journal administrative requirements (providing authorship details; ethics committee approval; conflict of interest forms; informed consent).

Before and during the submission process, the authors must:

- Submit a cover letter which must justify the interest in publishing the article in PJCTVS; the corresponding author should sign the letter in the name of all authors confirming that all meet authorship criteria; the contribution of each to the work must be specified.
- Confirm that the article is original, that it was only submitted for publication in the PJCTVS and that it has not been published previously.
- Confirm that the work complies with ethical and legal principles (it complied with the recommendations of the Declaration of Helsinki of the World Medical Association and was evaluated and approved by the ethics committee, if an original study).
- Confirm that all authors accept responsibility for the validity of the data, that everyone read and had access to all study data, and all are in agreement with the content of the article and its submission to PJCTVS.
- Accept the assignment of copyright and agree to the availability of the manuscript in print or digital.

- Ensure that authors declare potential Conflicts of Interest that could introduce bias or be seen as a bias in the conduct of their work in their article.
- Indicates the sources of funding if appropriate.
- Confirm that the submission adheres to the requirements outlines in the Author Guidelines

Responsibility for the content

Although editors and reviewers make efforts to ensure the technical and scientific quality of the manuscripts, the final responsibility for the content (namely the accuracy and precision of the observations, as well as the opinions expressed) is the sole responsibility of the authors, who belong to intellectual property of the articles.

Conflicts of Interest

Each of the authors must indicate in their article whether or not there is any type of Conflict of Interest. In this context, authors are required to disclose any financial and personal relationships that exist in relation to the work they submit. They should also identify any benefits that may be associated with the publication of the article, including: shares or financial interests in companies or other institutions, salaries or bonuses, scholarships or other forms of financing, consultancy, patent rights or any other types of financial relationships. Any other personal, professional, political, religious, or any other relationship that readers may consider likely to influence the article being published should also be reported. This information will be kept confidential during the manuscript review and will not influence the editorial decision,

but will be published with the article if accepted. The existence of conflicts of interest for the publication of an article is not a reason for its rejection, as long as such conflicts of interest are properly declared. If in doubt about what constitutes a relevant financial or personal interest, authors should contact the Editor-in-Chief.

Consent of Patients

Authors are responsible for obtaining informed consent for each clinical case. In photographs, videos, or medical imaging, the respective patient`s/individual identity must be hidden. Personal data, such as occupation or residence, should be omitted, except when epidemiologically relevant.

Studies in patients or volunteers need ethics committee approval and informed consent from participants. The opinion of the ethics committee (namely regarding the need for informed consent) must be documented in the article. The protocol number approved by the ethics committee must also be mentioned. Authors must also ensure compliance with regulation (EU) 2016/679 of the European Parliament and of the Council of April 27, 2016.

All animal experiments must comply with the ARRIVE guidelines and must follow the European Union directive EU Directive 2010/63/EU for animal experiments, and the authors must explicitly state that these recommendations have been followed.

Duplicate Submission and Publication

PJCTVS does not accept material previously published in printed or electronic form, as well as manuscripts under consideration in another magazine. Except for the previously mentioned publications in the form of abstract, academic thesis or conference communication. PJCTVS endorses the ICMJE's policies regarding the duplication of publications.

Plagiarism Policy

Intentional or not, plagiarism is a serious violation. We define plagiarism as reproduction of another work with at least 25% similarity and no citation. If evidence of plagiarism is found before/after acceptance or after publication of the article, the author will be given an opportunity to rebut. If the arguments are not found to be satisfactory, the manuscript will be retracted.

Peer Review

All manuscripts submitted to the PJCTVS undergo peer review. There is a strict double anonymization policy, which means that authors are anonymized to reviewers and vice versa. Reviewers are required to respect the confidentiality of the peer review process and not reveal details of a manuscript or its review during or after the peer review process. If reviewers wish to involve a colleague in the review process, they must first obtain permission from the Editor.

The acceptance criteria for all works are the quality, clarity and originality of the investigation and its meaning for our readers. Manuscripts must be written in a clear,

concise, and straightforward style. The manuscript must not have been published, in whole or in part, nor submitted for publication elsewhere.

All submitted manuscripts are initially evaluated by the Editors and may be rejected at this stage, without being sent to reviewers. Final acceptance or rejection rests with the Editor-in-Chief, who reserves the right to refuse any material for publication. The PJCTVS editorial board will send manuscripts to external reviewers selected from a database. Editors reserve the right to return to the corresponding author all manuscripts that do not comply with the instructions to the authors.

Letters to the Editor or Editorials will be evaluated by the Editorial Board, but external reviews may also be requested.

In the evaluation, manuscript reviews will be classified as:

1. A) Accepted without changes
2. B) Accepted, pending on minor revisions
3. C) Reassess after major changes
4. D) Rejected

Within 30 days, the reviewer must respond to the Editors indicating their comments on the reviewed manuscript and the suggestion of acceptance, review or rejection of the work. Within 10 days, the Editorial Board will make a decision that may be: to accept the manuscript without modifications; send the reviewers' comments to the authors as established; rejection.

When changes are proposed, authors have 30 days (a period that can be extended at the authors' request) to submit a new revised version of the manuscript, incorporating the comments of the reviewers and the editorial board. They must answer all questions in a

separate document and also submit a revised version of the manuscript, with the amendments inserted with the “Track changes” function enabled.

Editors have 10 days to make the decision on the new version: reject or accept the new version or forward it for further consideration by one or more reviewers.

In case of acceptance, in any of the previous phases, it will be communicated to the Corresponding Author.

In proof review, substantial changes to the manuscript will not be accepted. The inclusion of these changes may motivate the rejection of the manuscript by decision of the Editors. In the typographic proof review phase, fundamental changes to the articles will not be accepted and may imply their subsequent rejection by decision of the Editor-in-Chief.

Although editors and reviewers make every effort to ensure the technical and scientific quality of the manuscripts, the ultimate responsibility for the content (namely the accuracy and precision of the observations, as well as the opinions expressed) rests solely with the authors.

Publication Costs

There will be no publication costs (there are no submission or publication fees for color images).

Typographic proofs

The typographic proofs will be sent to the authors along with the revision deadline according to the publication needs of the PJCTVS. The reviewed article must be approved by the corresponding author. Authors have 48 hours to review the text and report any typographical errors. At this stage, the Authors cannot make any background modifications to the article, other than corrections of typographical and / or spelling errors.

If failure of the Authors to honor the deadline frees the PJCTVS occurs, the PJCTVS Editorial Team may proceed with the revision and editing of the paper while dispensing the Authors´ authorization.

Errata

The magazine PJCTVS publishes changes or amendments to a previously published article, if, after publication, errors or omissions are identified that influence the interpretation of data. Changes after publication will take the form of an errata.

Retractions

Reviewers and Editors assume that authors report work based on honest observations. However, if there are substantial doubts about the honesty or integrity of the work, submitted or published, the editor will inform the authors of their concern, seek clarification from the sponsoring institution of the author and / or the employing institution. Consequently, if they consider the published article to be fraudulent, the magazine PJCTVS will proceed with the retraction. If this method of investigation does not reach a satisfactory conclusion, the editor may choose to conduct his own

investigation, and may choose to publish a note of concern about the conduct or integrity of the work.

Sponsorships

Advertising must not jeopardize the journal's scientific independence or influence editorial decisions and must comply with general and specific legislation in the area of health and medicine.

Final note - for a more complete explanation on this subject, we recommend reading the Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals by the International Commitee of Medical Journal Editors), available at http: // www. ICMJE.org

B / Instructions to authors

The PJCTVS objective is the publication of original articles in the fields of Cardiac Thoracic and Vascular Surgery. The manuscripts will be reviewed by the Editors and by external reviewers, and their acceptance will depend on their scientific interest, originality and validity. The official language of the publication is English.

General rules

All articles must be prepared according to the “AMA Manual of Style”, 10th ed. and / or “Uniform Requirements for Manuscripts Submitted to Biomedical Journals”. The

document must be written in English. Words in Latin or in a language other than the text must be placed in italics.

The components of the Title Page are: Title, Authors, Affiliation listing each institution with a number, e-mail of each author, Corresponding author and respective telephone contact. The total word count of the article and the category of publication to which the article is being submitted must be mentioned.

The components of the Manuscript are: Title; Abstract; Keywords (preferably MESH terms); Text; Conflict of Interest; Funding; Acknowledgments (if applicable); References; Legends (Figures and Tables).

No references to the authors should be made in the Manuscript to allow peer review to be double blinded. The pages of the manuscript should be numbered consecutively. The lines of the manuscript should also be numbered consecutively.

The submission must be done entirely in electronic format. The text file must be submitted in Word format, with numbered pages in the lower right corner, numbered lines on the left, Times New Roman font, size 12, double space and justified. The tables must be submitted in individual files, in Word format, Times New Roman font, size 12, single space, first column aligned to the left and the remaining columns centered. The images must also be submitted in individual files, in .TIFF (or JPEG), EPS (or PDF) format, with a minimum definition of 300dpi.

- Numbered page in the lower right corner

- Consecutive numbered lines in the left

- Letter - Times New Roman - size 12

- Double-spaced text, justified

- Title of the different sections should appear in bold and capital letters: Title, Abstract, Keywords, Text (including Introduction, Methods, Discussion, Conclusion), Acknowledgments, Conflict of Interest, Funding, Acknowledgments, References, Legends (of Figures and Tables).

Submission

Electronic submission of manuscripts must be at pjctvs.com. Only submissions that comply with the rules previously described are considered valid. After submission, the Editors will confirm the receipt of the manuscript with the corresponding author. In articles that are not originated by editorial invitation, the date of submission and the date of acceptance will be presented in the article.

Publication typologies

Article typology	Maximum word count*	Maximum nº of authors	Maximum nº of reference	Maximum nº of figures and tables
Original article	3500	8	40	8
Review article	4000	8	50-75	5
Clinical case	1000	5	10	4
Images in surgery	150 no additional legends	4	0	2

Letter to the editor	600	4	10	1
Editorial	1000	2	10	2

Table 1: Article typologies and their characteristics. * Excluding summary, references and legends of figures and tables.

The following categories of articles are accepted for publication (Table 1), and Editorials can only be submitted after invitation. The editorial board also reserves the possibility to invite the submission of articles of other typology. The word count must include abstract and legends, excluding references.

- Original articles

The Manuscript of an original article must be presented with the following sections: Title, Abstract, Keywords, Introduction (including Objectives), Material and Methods or Methods, Results, Discussion, Conclusion, Conflicts of Interest, Funding, Acknowledgments (if applicable), References, Legends of Tables and Figures. The Acknowledgments section is intended for all persons and/or institutions that collaborated in the realization of the article and who do not qualify as authors. Original Articles should not exceed 3500 words, excluding references and illustrations. It must be accompanied by illustrations, with a maximum of 8 figures/tables and 40 bibliographic references. The abstract of the original articles must not exceed 300 words and will be structured (with headings in bold and non capital letters: Introduction, Materials and Methods, Results and Conclusion).

- Review articles

They are intended to address, in depth, the current state of knowledge regarding important topics. Maximum length: 4000 words of text (not including abstract, captions and references). It cannot have more than a total of 5 tables and/or figures, and no more than 50-75 references. The abstract of review articles should not exceed 300 words and should be structured with the following headings in bold and non capital letters: Introduction, Methods, Results and Conclusion.

- Clinical cases

The report of a clinical case must have a clear justification for publication (rarity, atypical evolutions, therapeutic and diagnostic innovations, among others). The sections of a clinical case are: Title, Abstract, Keywords, Introduction, Clinical Case, Discussion, Conflict of Interest, Funding, Acknowledgments, References and Legends (Figures and Tables). The authorship of this type of articles should not exceed five authors. Other contributions can be recognized at the end of the text, under the subtitle "Acknowledgements". The text must not exceed 1,000 words and 10 bibliographical references. The submission of illustrative figures is incentivized. The number of tables/figures must not exceed 4. Include an unstructured abstract not exceeding 150 words, summarizing the objective, main points and conclusions of the article.

- Images in Surgery

Images in Surgery is an important contribution to medical learning and practice. Images from physical examination, imaging, histopathology, surgery, etc. may be accepted. Up to two images can be sent per case. It must include a title and a text with a maximum of 150 words where relevant clinical information is given. Up to four authors are allowed. It must not have an abstract, figure legends or bibliographical references. Only original, high quality photographs that have not been submitted for publication are accepted. For information about digital images, see the "Technical guidelines for submitting figures, tables or photographs".

- Recommendations or Clinical Guidelines

Medical societies, specialty colleges and official entities that wish to publish clinical practice recommendations within the scope of the specialties of Cardiac Surgery, Thoracic Surgery and/or Vascular Surgery, must contact the Editorial Board in advance and submit the full text and version to be published.

- Letters to the Editor

Letters to the Editor should be a critical commentary on an article published in PJCTVS or a short note on a topic or clinical case. The text should not exceed 600 words (excluding references and illustration captions), one illustration (table or figure) and 10 bibliographical references. No summary required. If it is a critical comment to a published article, they must follow a general structure: identify the article (becomes reference 1); justify your writing; provide evidence (from literature or from personal experience); provide a summary; cite references. Authors' answers must respect the same characteristics. If the Letters to the Editor refer to articles published recently, they have higher probability of acceptance.

- Editorials

Editorials will only be submitted by invitation of the Editor. These will be comments on current topics. They must not exceed 1000 words or contain tables/figures and will have a maximum of 10 bibliographic references. No need for a summary.

Required Documents

1. Cover letter – It must justify the interest in publishing the article in PJCTVS; the corresponding author should sign the letter in the name of all authors confirming that all meet authorship criteria; the contribution of each to the work must be specified.
2. Title page - This must include the Title without abbreviations and in capital letters; name and surname of the authors and the name(s) and location(s) of the Institution(s) of affiliation of each author. The name, telephone number and email of the corresponding author must be entered at the bottom of the title page. The total word count of the article must be mentioned. The category of publication to which the manuscript is being submitted must also be mentioned.
3. Manuscript - This must include Title, Abstract, Keywords (preferably MESH terms and up to a maximum of 6); Text; Conflict of Interest; Funding; Acknowledgments (if applicable), References; Legends (of Figures and Tables).
4. Tables - must be numbered according to the sequence in which they appear in the text, and sent in a separate file from the manuscript text, in Word format. They must include the respective numbering. The first column must be left-aligned; the remaining columns must be aligned to the center. The abbreviations used in the tables must be defined in the table caption, even if previously defined in the text.
5. Figures - must be numbered according to the sequence in which they appear in the text, and sent in individual files, in TIFF (or JPEG), EPS (or PDF) format, referencing the respective numbering and with a minimum definition of 300dpi.
6. Twitter and/or LinkedIn - You may provide a brief statement (maximum 150 words) to answer the question "What does this study/review add to the existing literature and how it will influence future clinical practice" to increase your paper visibility (Altmetric). At the discretion of the editors, this statement may be placed at the beginning of the published article or used to promote the manuscript at social media.

Further details about the sections

Title

Frame a simple and concise title, choosing the words that are essential. Try to avoid abbreviations and any kind of dashes to separate title parts.

Abstract

The Abstract, being the most read section of all the articles, is essential. It must be factual, with no abbreviations (except International System units). It must be structured in: Objectives, problem under study or study objective; Methods, explaining how the study was carried out; Results, revealing the data found and its importance; and Conclusion, revealing the conclusion of the study. The maximum word limit in the abstract is 250.

Text

The text should be organized in the following elements. Each of these sections must be identified in Capital letters.

a) Introduction: must reveal the objective of the investigation and make a short bibliographic review of the state of the art in relation to the problem under study.

b) Material and Methods/Methods: these should be described in detail with appropriate information on human or animal studies as noted above. The use of abbreviations should be limited to the units of measurement of the International System or to those in common use. Technologies should be named using their generic name, with the trade name and manufacturer's location in parentheses. The statistical techniques of data analysis must be described in detail, as well as the software used.

c) Results: these should be considered the most important part of the article. As such, it is important that they are described concisely but simultaneously highlighting all results extensively.

d) Discussion/Discussion and Conclusion: the discussion should be clear, brief, and should include the interpretation of the significance of the results and their relationship with other works published in the same area. The importance of the results and the methodological limitations, if any, must be stated.

e) Interest conflicts: see above.

f) Financing source if applicable.

g) Acknowledgments: if they exist, they should be mentioned at the end of the text.

h) References: must be presented sequentially according to the order of use in the text and presented as numbers above the line (for example, [1] or [2-6]). Personal communications and unpublished data should not be included in the reference list, although they may be referred to in the text. References must use the Vancouver style. Whenever the article has more than five authors, the first 5 must be listed, followed by et al. In the references, all authors must be mentioned, and the newspapers or magazines presented according to the abbreviations used in Index Medicus. Whenever available, the DOI must be presented at the end of the reference. Its formatting must follow the rules of the manuscript text (Times New Roman, size 12 and double spacing).

Examples:

Journals

1. Dinis da Gama A, Perdigão J, Ministro A, Evangelista A, Damião A et al. The utilization of the "simplified technique" in the simultaneous management of independent thoracic and abdominal aortic aneurysms. A clinical report. RevPort Cir Cardiotorac V 2009;3:149-155.

Books

1. Antunes M J. A Doença da Saúde. Lisboa: Quetzal 2001:167- 176. Vários Autores[3] Fragata J, Martins L. Como evitar o erro em Medicina. Em: Fragata J, Martins L, autores. O Erro em Medicina. Lisboa:Almedina, 2008:313-348. Publicações Online (O DOI é referência obrigatória e a única necessária para citações de artigos de publicações online)

Publicações Online (O DOI é referência obrigatória e a única necessária para citações de artigos de publicações online)

1. Azevedo O, Almeida J, Nolasco T, Medeiros R, Casanova J e al. Massive right atrial myxoma presenting as syncope and exertional dyspnea: case report. Cardiovascular Ultrasound doi:10.1186/1476-7120-8-23.

i) Legends of Figures and Tables: Figure and table captions must be mentioned in order in the main manuscript after the references, and numbered corresponding to the images and/or tables sent.

Manuscripts accepted for review

The revised manuscripts must be sent properly titled – revision1, revision2, etc, including new figures and tables if necessary. Comments from editors and/or reviewers should be discussed point-by-point in an attached letter and proposed changes discussed. Changes must be visible using Word's "track changes" function.

Supplementary material

Supplemental material such as applications, images, sound clips, videos can be published with the article to enhance it. Supplemental material is published exactly as submitted. Upon submission, this must be accompanied with a concise description of each item.

Submission Checklist

Make sure all of the following requirements are fulfilled before submitting your manuscript. Submissions may be returned to authors that do not adhere to these guidelines.

- One author is named corresponding author and her/his e-mail and phone contact are given.
- The article is original, it was only submitted for publication in the PJCTVS and it has not been published previously.
- The work complies with ethical and legal principles - it complied with the recommendations of the Declaration of Helsinki of the World Medical Association and was evaluated and approved by the ethics committee, if an original study.

- All authors meet authorship criteria, and everyone accepts responsibility for the validity of the data, that everyone read and had access to all study data, and all are in agreement with the content of the article and its submission to PJCTVS.
- All authors accept the assignment of copyright and agree to the availability of the manuscript in print or digital.
- Authors must declare potential conflicts of interest that could introduce bias or be seen as a bias in the conduct of their work in the manuscript.
- The work indicates the sources of funding if applicable.
- Manuscript is prepared as following: 12-point Times New Roman font, double-spaced and justified text, numbered page in the lower right corner, numbered lines to the left.
- The different sections of the manuscript are clearly identified: Title, Abstract, Keywords, Text (Introduction, Methods, Discussion, Conclusion), Conflict of Interest, Funding, Acknowledgment, References, Legends (of Figures and Tables).
- Citations are in superscript without parenthesis and References are in Vancouver style.
- The images and tables are submitted as separate files.
- The submission adheres to the remaining requirements outlines in the Author Guidelines of the PJCTVS.

Scale for the Assessment of Narrative Review Articles – SANRA

Please rate the quality of the narrative review article in question, using categories 0–2 on the following scale. For each aspect of quality, please choose the option which best fits your evaluation, using categories 0 and 2 freely to imply general low and high quality. These are not intended to imply the worst or best imaginable quality.

Nota: Para a UC de Dissertação/Projecto, todos os seis items devem ser cumpridos em nível 2.

1) Justification of the article's importance for the readership

The importance is not justified. 0
The importance is alluded to, but not explicitly justified. 1
The importance is explicitly justified. 2

2

2) Statement of concrete aims or formulation of questions

No aims or questions are formulated. 0
Aims are formulated generally but not concretely or in terms of clear questions. 1
One or more concrete aims or questions are formulated. 2

2

3) Description of the literature search

The search strategy is not presented. 0
The literature search is described briefly. 1
The literature search is described in detail, including search terms and inclusion criteria. 2

2

4) Referencing

Key statements are not supported by references. 0
The referencing of key statements is inconsistent. 1
Key statements are supported by references. 2

2

5) Scientific reasoning

(e.g., incorporation of appropriate evidence, such as RCTs in clinical medicine)

The article's point is not based on appropriate arguments. 0
Appropriate evidence is introduced selectively. 1
Appropriate evidence is generally present. 2

2

6) Appropriate presentation of data

(e.g., absolute vs relative risk; effect sizes without confidence intervals)

Data are presented inadequately. 0
Data are often not presented in the most appropriate way. 1
Relevant outcome data are generally presented appropriately. 2

2

Sumscore 12

Fig. 1 SANRA - Scale

Nota 1: O ponto 5 diz respeito à contextualização da evidência científica em relação ao tipo de estudo(s) que a produziu (e, idealmente, à qualidade do(s) mesmo(s)). O ponto 6 diz respeito a sustentar as afirmações com os dados quantitativos mais apropriado. A título de exemplo, para cumprir o ponto 5 e o ponto 6, ao invés de afirmar "já foi evidenciado que os testes de alergia às penicilinas apresentam alta especificidade e moderada sensibilidade", dever-se-á indicar "uma revisão sistemática com meta-análise de acuidade diagnóstica evidenciou que os testes de alergia às penicilinas apresentam alta especificidade (valor meta-analítico: 97%; IC95%=94-98%) e moderada sensibilidade (valor meta-analítico: 31%; IC95%=19-46%).

SANRA – explanations and instructions

This scale is intended to help editors assess the quality of a narrative review article based on formal criteria accessible to the reader. It cannot cover other elements of editorial decision making such as degree of originality, topicality, conflicts of interest or the plausibility, correctness or completeness of the content itself. SANRA is an instrument for editors, authors, and reviewers evaluating individual manuscripts. It may also help editors to document average manuscript quality within their journal and researchers to document the manuscript quality, for example in peer review research. Using only three scoring options, 0, 1 and 2, SANRA is intended to provide a swift and pragmatic sum score for quality, for everyday use with real manuscripts, in a field where established quality standards have previously been lacking. It is not designed as an exact measurement of the quality of all theoretically possible manuscripts. For this reason, the extreme values (0 and 2) should be used relatively freely and not reserved only for perfect or hopeless articles.

We recommend that users test-rate a few manuscripts to familiarize themselves with the scale, before using it on the intended group of manuscripts. Ratings should assess the totality of a manuscript, including the abstract. The following comments clarify how each question is designed to be used.

Item 1 – Justification of the article's importance for the readership

Justification of importance for the readership must be seen in the context of each journal's readership.
Consider how well the manuscript outlines the clinical problem and highlights unanswered questions or evidence gaps – thoroughly (2), superficially (1), or not at all (0).

Item 2 – Statement of concrete/specific aims or formulation of questions

A good paper will propose one or more specific aims or questions which will be dealt with or topics which will be reviewed.
Please rate whether this has been done thoroughly and clearly (2), vaguely or unclearly (1), or not at all (0).

Item 3 – Description of the literature search

A convincing narrative review will be transparent about the sources of information on which the text is based. Please rate the degree to which you think this has been achieved. To achieve a rating of 2, it is not necessary to describe the literature search in as much detail as for a systematic review (searching multiple databases, including exact descriptions of search history, flowcharts, etc.), but it is necessary to specify search terms, and the types of literature included. A manuscript which only refers briefly to its literature search would score 1, while one not mentioning its methods would score 0.

Item 4 – Referencing

No manuscript references all statements. However, those that are essential for the arguments of the manuscript – "key statements" – should be backed by references in all or almost all cases. Exceptions could reasonably be made for rating purposes where a key statement has uncontroversial face-validity, such as "Diabetes is among the commonest causes of chronic morbidity worldwide."
Please rate the completeness of referencing: for most or all relevant key statements (2), inconsistently (1), sporadically (0).

Item 5 – Scientific reasoning

The item describes the quality of the scientific point made. A convincing narrative review presents evidence for key arguments. It should mention study design (randomized controlled trial, qualitative study, etc), and where available, levels of evidence.
Please rate whether you feel this has been done thoroughly (2), superficially (1), or hardly at all (0). Unlike item 6, which is concerned with the selection and presentation of concrete outcome data, this item relates to the use of evidence and of types of evidence in the manuscript's arguments.

Item 6 – Appropriate presentation of data:

This item describes the correct presentation of data central to the article's argument. Which data are considered relevant varies from field to field. In some areas relevant data would be absolute rather than relative risks or clinical versus surrogate or intermediate endpoints. These outcomes must be presented correctly. For example, it is appropriate that effect sizes are accompanied by confidence intervals. Please rate how far the paper achieves this – thoroughgoingly (2), partially (1), or hardly at all (0). Unlike item 5, which relates to the use of evidence and of types of evidence in the manuscript's arguments, this item is concerned with the selection and presentation of concrete outcome data.

Fig. 2 SANRA—explanations and instructions document