

### Different procedures and therapeutic indications

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The last few months were extremely profitable in generation of new knowledge that have served to clarify important aspects of the coronary arteriosclerosis (coronary artery disease [CAD]). Controlled randomized trials of great impact such as the COURAGE (Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation), OAT (Occluded Artery Trial), and MASS-II (the medicine, angioplasty, or surgery study), besides the institutional and multi-institutional registries with large number of cases have reaffirmed some aspects and have surprised in others.

The conceit that different methods of treatment do not present similar efficiency in all forms of CAD presentations is deeply rooted. In patients with chronic CAD and low-risk stable angina, the studies suggest that the clinical drug treatments and percutaneous angiography provide a similar prognosis. On the other hand, in high-risk patients, especially in those with left ventricle dysfunction and those with diabetes mellitus, the evidences that the surgical

treatment offers a better prognosis to the patient is unquestionably strengthened, by translating into a better and higher long-term survival.

Particularly, the Editorial by Dr. José Glauco Lobo Filho is extremely rational, pertinent, and clarifying in the analysis of this aspect and of other ones.

Based on evidence emergent data and his clinical experience in handling patients daily, the proposals are coherent and most importantly, the multidisciplinary involvement is critical to readily attain the first goal, i.e., the patient's benefit. Obviously, the patients tend to prefer less invasive procedures, but they should be properly informed that the results and prognoses can be different as well. In addition, the correct treatment course can prevent unnecessary procedures, which can be very harmful sometimes, hampering the waste of the country's already scanty health resources in our reality.

It is a recommended reading that should be useful to drive our effort from now on.

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## Different procedures and therapeutic indications

**José Glauco Lobo Filho\***

**R** Recently, I have taken part of the 7th Coronary Diseases International Congress held in Venice, Italy. In the session about new image diagnostic techniques, representatives from renowned services from United States of America, United Kingdom, and Israel ran mainly upon echocardiographic and tomographic images, from both coronary system and cardiac chambers. As it was expected, none of the presentations compared these new image techniques with cardiac catheterism. First, cardiac catheterism is a well-established method in this medical field. Second, the exams are different. **Different procedures are**

**supplementary to each other.** It has always been like that in the history of medicine. The superseding of a method by another occurs according to an evolutionary process of each one separately from the moment they are similar to each other and present results in a far more comprehensiveness way as possible.

From the scientific standpoint, ruling out other aspects, I positively believe that all the comparative studies between percutaneous coronary intervention (PCI) and myocardial revascularization surgery (MRS) developed until this moment were inadequate from the methodological standpoint, and as it would be expected, they were inconclusive or presented results

inconsistent with the reality. To better explain these statements we have to work out some critical analysis in detail.

A randomized clinical trial [1] was recently published, which has motivated the composition of the editorial on the "Circulation" [2], comparing PCI, MRS, and clinical treatment in a series of multiarterial patients with stable coronary insufficiency and good ventricular function. The adoption of several exclusion criteria, at the same time that try to unify the study sample, can favor given procedures possibly creating a selection bias. Therefore, from the scientific standpoint, we considered that the application of methodologies trying to compare three different procedures for several presentations of the same disease is imperfect. In addition, the results can vary depending on the experience e the clinical skill of the professionals involved in the research. **Different procedures and therapeutic indications.** The fact of a MRS to have presented a better result in relation to the other procedures, certainly is owned to the more comprehensive condition to treat more complex and diversified forms of the disease, and by always being associated to an already well-established clinical treatment. For sure, in less complex and punctual cases of the disease, clinical treatment alone would be more appropriate.

Coronary insufficiency surgical treatment over the last 40 years has increasingly evolved, benefiting more and more the patients with all presentation forms of such a multifactorial disease [3,9]. As it was expected, comparative studies involving two types of such different procedures as PCI and MRS to treat the same disease, in this case, the coronary insufficiency will not present scientifically correct results, once each patient presents his/her own pathophysiology and anatomic characteristics.

Obviously, we hold the opinion that PCI procedures have presented great progresses from the technical standpoint over the past few years, which one had the remarkable and necessary support of cardiac surgery. However, generally speaking, I have many doubts whether this technical progress was followed by clinical benefits to the patients in general terms [10,11], ruling out the treatment in acute phase of myocardial infarction [12,13]. Although the PCI reduces mortality when performed to restore the coronary blood flow during myocardial acute phase, no study has shown the efficacy of this procedure over the optimized clinical treatment regarding the clinical outcomes of coronary patients with or with angina symptoms [14,15]. James Stein, MD, director of the Preventive Cardiology Program at the University of Wisconsin

School of Medicine observed that the COURAGE study shows clearly something we have already known: "**angioplasty does not save lives, except in acutely ill patients, as well as it does not prevent heart attacks**" [15]. By the fact of involving a paradigm change in the treatment of such a multifactorial and complex disease as atherosclerosis, the PCI procedure should be clinically studied involving other methodologies with large groups of patients in order to make possible to evaluate its actually benefits. Before, obviously, its experimental studies with the several types of devices used should be widely presented to the scientific community.

Probably, there has been some precipitation trying to compare PCI with MRS, once these are completely different therapeutics, especially regarding their anatomical and clinical comprehensiveness. As we have already stated before, **different procedures are supplementary, similar, supersede or unify to each other.**

I consider that, at the present, taking into consideration all we know, and aiming exclusively at offering the best possible treatment to the patients with coronary insufficiency, from both scientific and economic standpoint, it would be important that the Brazilian Society of Cardiology get together a group of experts (surgeons, clinicians, and hemodynamicists) without conflicts of interest, in order to decide which programs we should develop in relation to such an important and complex disease.

Specifically in relation to the cardiac surgeons, I suggest that the SBCCV/BSCVS institutes an advisory panel in the sense of adopting professional and ethical conducts which would be suggested to all the members and the health education expert centers. Among many, we could start developing a line of thought in the following direction:

- To avoid participating of series involving the comparison between PCI and MRS; if someone wants to compare angioplasty with surgery is because surgery is efficient. No one wants to compare with the ugly or the bad. WE held the opinion that the PCI procedures, as all of medical procedures, should continue to develop. In this sense, we always will be ready to collaborate as we always did. To take part in this debate, at the present stage, is to accept subserviently and not scientifically the depreciation of the true and real benefits offered by MRS and is still offering to the world-wide population over almost half century. In addition, how two completely different treatment methods can be compared as a whole? The acceptable is that both methods can be at the utmost complementary, as I have already stressed;

- To be a support or to provide medical coverage

to some procedure, it is understood that we agreed to its performance. To accept without agreeing, is philosophically from the ethical standpoint to be able to be criticized, and is above all, in most of cases, to be negligent, what I holistically consider to be an anti-professional attitude.

- To develop, if it was possible, with the support of the Health Ministry, a database to show the society the real benefits cardiac surgery offers to our population. Thus, we would not be hostages neither vulnerable, bear in mind the facts we have seen in last few months, with distorted publications, not by failure of the publishing houses, but by their information sources [16].

- To develop technical and scientific education programs, within our reality, especially with younger surgeons, in the sense to improve what we already do in our routine practice. These programs should be closely followed by SBCCV/BSCVS. It will be essential to include in this program, endoprosthesis training, repair of heart defects via endovascular, including aortic and mitral valve lesions, besides the salvage of the pace-makers implanted, cardiac resynchronizers, and, defibrillators. We cannot forget the robotics training, which is a reality in some more developed centers [17,18].

- To develop policy with the Health Ministry to show our true importance in the Brazilian public health scenario, especially in relation to the Unified Health System, trying at the full extent to collaborate to its strengthening and better performance in the assistance to the patient with heart disease.

Finally, I believe it is possible, depending mainly on the development of technical, instrumental, and pharmacological support that both MRS and PCI can in the future to fuse in many similar points, maybe appearing as a new subspecialty.

It will prevail who prepare better his/her teams towards pathophysiology and epidemiology with which the cardiovascular disease would further come to be defined with, safeguarding always the best clinical outcome in short, medium, and long-term benefit to the patients.

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#### REFERENCES

1. Hueb W, Lopes NH, Gersh BJ, Soares PR, Machado LAC, Jatene FB, Oliveira AS, Ramires JAF. Five-Year Follow-Up of the Medicine, Angioplasty, or Surgery Study (MASS II). A Randomized Controlled Clinical Trial of 3 Therapeutic Strategies for Multivessel Coronary Artery Disease. *Circulation*. 2007;115:1082-1089.
2. King SB. Five-Year Follow-Up of the Medicine, Angioplasty, or Surgery Study (MASS-II). Prologue to COURAGE. *Circulation*. 2007;115:1064-1066.
3. Puig LB, França NL, Fontes RD, Fiorelli AI, Lourenção JA, Ramirez JA, Rati M, Silva EE, Silva LA, Hueb W. Right internal mammary artery in retroaortic position for direct myocardial revascularization. *Arq Bras Cardiol*. 1984;42(5):319-23.
4. Favaloro RG. Critical analysis of coronary artery bypass graft surgery: a 30-year journey. *J Am Coll Cardiol*. 1998. 31(4 Suppl B):1B-63B.
5. Lima RC, Escobar MAS, Santa RFD, Diniz R, D'aconda G, Bergsland J, Salerno T. Avaliação Hemodinâmica Intraoperatória na Cirurgia de Revascularização Miocárdica sem Auxílio da Circulação Extracorpórea. *Rev. Bras. Cir. Cardiovasc*. 2000;15(3):201-211.
6. Lobo Filho JG, Leitão MCA, Forte AJV, Lobo Filho HG, Silva AA, Bastos ES, Murad H. Flow Analysis of Left Internal Thoracic Artery in Myocardial Revacularization Surgery Using Y Graft. *Tex Heart Inst J*. 2006;33:430-6.
7. Oliveira SA, Lisboa LAF, Dallan LAO, Rojas SO, Poli LFF. Minimally invasive single-vessel coronary artery bypass with the internal thoracic artery and early postoperative angiography: midterm results of a prospective study in 120 consecutive patients. *Ann. Thorac. Surg*. 2002; 73:505-10.
8. Brofman PRS, Milani R, Varela A, Moutinho JA, Guimaraes M, Pantarolli R, Barbosa L, Pina G, Maia F. Revascularização total do miocárdio sem circulação extracorpórea: cinco anos de experiência. *Rev. Bras. Cir. Cardiovasc*. 2005;20:52-57.
9. Buffolo E, Branco JNR, Gerola LR, Aguiar LF, Teles CA, Palma JH, Catani R. Off- pump Myocardial Revacularization: Critical Analysis of 23 years'. Experience in 3866 patients. *Ann. Thorac. Surg*. 2006;81:85-89.
10. Taggart, DP. Coronary artery bypass graft vs. percutaneous coronary angioplasty: CABG on the rebound? *Curr Opin Cardiol*. 2007 Nov;22(6):517-23.
11. Tu JV, Bowen J, Chiu M, Ko DT, Austin PC, He Y, Hopkins R, Tarride JE, Blackhouse G, Lazzam C, Cohen EA, Goeree R. Effectiveness and safety of drug-eluting stents in Ontario. *N Engl J Med*. 2007 Oct 4;357(14):1393-402.

12. Grines CL, Browne KF, Marco J, et al. A comparison of immediate angioplasty with thrombolytic therapy for acute myocardial infarction. The Primary Angioplasty in Myocardial Infarction Study Group. *N Engl J Med.* 1993;323:673–679.
13. Mehta SR, Cannon CP, Fox KA, et al. Routine vs selective invasive strategies in patients with acute coronary syndromes: a collaborative meta-analysis of randomized trials. *JAMA.* 2005;293:2908–2917.
14. Boden WE, O'Rourke RA, Teo KK, et al. Optimal medical therapy with or without PCI for stable coronary disease. *N Engl J Med.* 2007;356:1503–1516.
15. Franklin, BA. Lessons learned from the COURAGE trial: generalizability, limitations, and implications. *Prev Cardiol.* 2007 Summer;10(3):117-20.
16. Coração intocado. Revista veja, 29 de agosto de 2007 – edição 2023. [http://veja.abril.com.br/290807/p\\_110.shtml](http://veja.abril.com.br/290807/p_110.shtml)
17. J. Michael Smith, Hubert Stein, Amy M. Engel, Sarah McDonough, and Lindsey Lonneman. Totally Endoscopic Mitral Valve Repair Using a Robotic-Controlled Atrial Retractor. *Ann. Thorac. Surg.*, August 2007; 84: 633 - 637.
18. Deeba S, Aggarwal R, Sains P, Martin S, Athanasiou T, Casula R, Darzi A. Cardiac robotics: a review and St. Mary's experience. *Int J Med Robot.* 2006 Mar;2(1):16-20.