Neointima development in externally stented saphenous vein grafts. Progress in medicine is good for the patient: why not use total arterial revascularization?

Response to the Letter to the Editor: Neointima development in externally stented saphenous vein grafts. External stents are bad for the patient: why not use an undamaged saphenous vein for coronary artery bypass graft?

Michał Krejca[1], Przemysław Węglarz[2], Maria Trusz-Gluza[1], Krystyna Bochenek[1]

[1]Upper Silesian Cardiology Centre, Silesian University of Medicine, Katowice, Poland
[2]Department of Human Anatomy, Silesian University of Medicine, Katowice, Poland

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The saphenous vein (SV) used for coronary artery bypass graft (CABG) in the described clinical trial was harvested in a conventional way and stripped of its surrounding tissue. The veins were distended to verify potential bleeding points and stored in saline solution at room temperature. Such a well-recognized surgical technique is still widely applied all over the world. Our clinical trial (stented vs. unstented SV grafts) was performed in 2003 following an initial animal study published in 2002. Due to suboptimal results observed in angiographic follow-up, the clinical study was interrupted.

The narrowing of the lumen of the vein graft implanted into the arterial circulation represents adaptation of the graft to increased stress imposed on the venous wall. This is mainly due to the increase of tangential forces and modification of shear forces to the vein wall. The vein graft undergoes remodeling very similar in fact to that observed in other cardiovascular pathologies. Following the idea of Zurbrugg *et al.*, sheathing of the vein graft with pressure resistant mesh might prolong vein graft patency by decreasing the tension in the vein graft wall [1]. In the late 1990s a few centers published optimistic data concerning various models of external stent in a relatively short observational animal model. In clinical reality the human SV presents probably a far better quality graft than any peripheral vein harvested from non-primate mammals.

Many investigators believe that an external stent should potentially act as a prosthesis of the external elastic membrane characteristic for the arterial wall rather than the vein wall [2]. The goal of our animal research was to evaluate the efficacy of an extravascular stent made of polyester mesh, which was independently developed for prospective cardiac surgery human use in prevention of venous graft degeneration [3].

The idea of the no-touch technique of SV harvesting sounds promising, like any other no-touch technique applied to surgery. It is worth remembering, however, that surgery is a very "touching technique" by means of any kind of medical treatment. Any new manual surgical technique is warmly welcomed, but the true progress in medicine lies nowadays in the new material technologies. The no-touch technique is now used in very few centers due to the much higher rate of complications with wound healing, hematoma formation and infections [4].

Currently after nearly 20 years since the initial idea of external stenting and our adequately growing medical experience, the authors believe that the only predictable solution showing obvious advantages in surgical treatment of coronary heart disease is total arterial revascularization (TAR).

Conflict of interest

The authors declare no conflict of interest.

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Corresponding author:
Przemysław Węglarz MD, 1st Department of Cardiology, Silesian University of Medicine, 45/47 Ziołowa St, 40-635 Katowice, Poland, phone: +48 600 467 332, e-mail: pweglarz@gmail.com
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