

## Simple rabbit model for vascular stent studies

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**Objectives.** Prior to clinical application of new brand vascular stents they should be thoroughly studied pre-clinically *in vivo*. The need of using the specialized surgical tools, medical equipment for experimental endovascular manipulations as well as the cost of laboratory animals and their following maintenance in a big extent increases the costs for such investigations. We suppose that technique of experimental stent implantation into blood vessel of laboratory animals may differ from that in human, because the main research interest is targeted to the investigation of local processes in the surrounded implant tissues.

**The research aim** was to design and test quite an easy-reproducible method for implanting the vascular stents into abdominal aorta of rabbits via simple peripheral vascular catheter, enabling to minimize the costs for carrying-out experimental pre-clinical vascular interventions.

**Methods.** Meeting all bioethical requirements experimental vascular stents (15 mm length, 3.5 mm expanded diameter) were implanted into abdominal aorta of 40 Chinchilla rabbits through the laparotomy access via simple peripheral catheter Venflon 16G which was introduced into aorta between 2 vascular clamps. The aorta wall defect caused by the puncture was sutured with prolene 6-0. Functional ability of myocardium and aorta was assessed with ECG and sonography. Aorta sections were morphologically assessed using histological staining with hematoxylin and eosin.

**Results.** All operated animals survived. We did not note any serious complications after the surgery and significant changes of functional ability of myocardium and aorta. The blood flow in abdominal aorta was not impaired, acute thromboses were absent. To the end of the first 24 hrs after surgery the physiological activity of operated animals was completely recovered. In 30 days after the stent implantation into rabbit's abdominal aorta we have observed the rests of metal carcass of the introduced implant which were plunged into a vessel wall and covered with endothelium. Additional surgical trauma (laparotomy) slightly complicates the course of follow-up period, but does not affect the final result of experimental stenting. The method excludes the need of using the X-ray equipment to control the stent coming along the vessel and its final localization.

**Conclusion.** The designed method of vascular stents' experimental implantation into abdominal aorta allows simplifying the surgical technique and minimizing the expenses for experimental preclinical vascular interventions due to application of traditional widely used surgical materials, instruments and equipment.