Transrenal Deployment of a Modular Stent Graft to Repair AAAs with Short Necks: Experiments in Dogs

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Résumé en anglais	Severely angulated (> 60°) or short (< 15mm) proximal necks remain significant anatomical limitations for endovascular stent-graft repairs for abdominal aortic aneurysms. Ensuring proper proximal fixation of the stent-graft to the host artery without the short-or long-term risks of endoleak or migration represents a particular technical challenge for these anatomical circumstances. An innovative balloon expandable stent combined with a weft-knitted prosthesis was specifically designed for these situations by modelling the stent to the neck anatomy without overdistension or potential barotrauma allowing better incorporation of the device. The Latecba stent-graft consists of a 2 parts modular design. The first one, Module A, is deployed at the transrenal level and consists of a Palmaz type stent whose first half is bare and second half is sutured to a crimped weft-knitted polyester graft whose distal end holds a constriction. The second Module B is a non-crimped weft-knitted graft attached to 2 stainless steel stents. The first stent is entirely contained in the proximal textile tube, allowing fixation to module A. The second stent, which is left uncovered over the distal third, ensures proper fixation of the stent-graft distally. Following the creation of a prosthetic aneurysm in the infrarenal aorta in 32 dogs, 29 received the Latecba stent-graft for scheduled durations of 10 days, 1 month, 3 months and 6 months. Proper deployment of the stent-grafts was achieved without difficulty. All 29 animals survived and the devices were all patent at sacrifice. No device defects or migrations were observed and the stent-grafts proved to be efficient in this setting to exclude the aneurysm. Analyses of the explanted devices (gross observations, RX, CT scan, IVUS, angioscopy) confirmed the stability of this modular stent-graft. Further on-going clinical investigations are warranted to validate this concept before this stent-graft becomes commercially available without any restriction.
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