Aortic endoprosthesis for the treatment of aneurysms

Aortic endoprosthesis that, through a tissue engineering solution, biologically treats abdominal aortic aneurysms by regression of the aneurysm and healing of the diseased artery wall.

Description and essential characteristics

Aortic endoprosthesis that, by means of its innovative approach (the use of tissue engineering) and design, definitively treats and heals aortic aneurysms.

The endoprosthesis is formed by a tubular body designed for attachment in the abdominal aorta (the means of attachment are designed to ensure the position of this tubular body) and a bag that is attached to and wraps around the tubular body creating a compartment. The bag is designed to expand in the aneurysm sac and has a small orifice for the passage of a catheter through which a stem-cell-based treatment is introduced within the compartment. This causes the bag to expand like a balloon within the aneurysm sac excluded from circulation by the tubular body.

Once the cells have been inserted into the bag, the orifice is closed by the pressure exerted by the endoprosthesis on the artery. The bag thereby ensures the confinement of cells in its interior and prevents leakage.

The bag is made of a bioabsorbable material that is reabsorbed a few days after implantation, in such a way that the inserted content has time to stabilise within its interior.

This new endoprosthesis design, along with the regenerative and repairing action of the cells inserted in its interior, treats the aneurysm and also prevents the leakage of blood and cells in the space defined between the outer surface of the prosthesis and the inner wall of the aneurysm sac.

Competitive advantages

This new endoprosthesis reduces the diameter of the aneurysm sac, promoting active healing (treating the sac directly) and ensuring the confinement of cells until they have stabilised within the thrombosed sac. This new endoprosthesis design significantly reduces the majority of risks inherent in these types of interventions:

- Repressurisation of the aneurysm
- Embolisation
- Blood and cell leakage in the space defined between the outer surface of the prosthesis and the inner wall of the aneurysm sac
- Migration of the endoprosthesis

By definitively treating the disease, the device also avoids the need for subjecting the patient to permanent medical follow-up and additional surgery due to the disease not being completely cured.

Lastly, production costs for the new endoprosthesis would not represent any higher costs versus current device models, given the fact that this device is based on current designs and production.

Type of collaboration sought

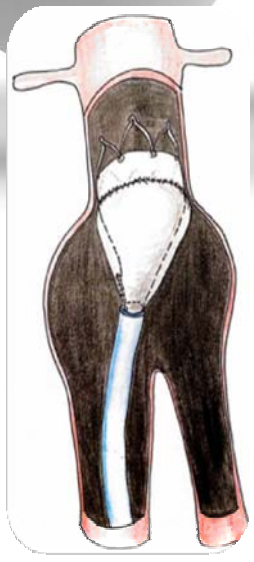
Cooperation is sought with any Party interested in partnering, licensing or investing in the technology, whether it be an investor to fund the project, a partner interested in getting involved in any of the various phases until its placement on the market, a patent licensee, etc. The organisations potentially interested in this technology are those devoted to the manufacture, commercialisation and/or distribution of healthcare products, particularly medical devices; as well as hospitals, vascular surgery clinics, etc.

Current stage of development

The safety and efficacy of the endoprosthesis have been confirmed through *in vivo* trials using animal models (21 pigs).
A hand-made prototype has been developed.

Current state of intellectual property

Spanish patent P201231638, applied for in October 2012.
International patent application PCT/ES2013/070712.



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