Novel Percutaneous Heart Valve

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33-004

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Category(s):
Medical Devices

Description:

Artificial Aortic Valve

Available for: Licensing

Summary

A novel design of artificial aortic valve for transcatheter implantation.

The Technology and its Advantages

Degenerative aortic stenosis due to senile valve calcification has become the most common valvular disease and although open heart surgical replacement has represented an effective treatment in the past, it is not ideal for an ageing population where morality risks from surgery increase with age. Transcatheter aortic valve implantation (TAVI) is a minimally invasive technique, which avoids the need for open heart surgery and eliminates some of the main risks associated with conventional invasive operations. The novel design of this technology consists of three polymeric flexible leaflets supported and secured through a self expanding frame.

The leaflets are composed of a nanocomposite polymer recently developed at UCL, which exhibits improved biocampatibility and biostablility, superior mechanical and surface properties and higher resistance to calcification than other polymers used in heart valve applications.

The device provides a simple method of collapsing the prosthesis, which would be fully retrievable and repositionable. The inability of first generation transcatheter valves to be extracted or adjusted after release is a major limitation as misplacement of the valve can lead to complications requiring urgent conversion to cardiac surgery. The novel design also offers improved anchoring and extended fatigue life compared to other artificial aortic valves.

Market Opportunity

More than 200,000 aortic valve surgical replacements are performed worldwide each year, with an annual growth rate of approximately 7%. This number however, does not include the third of potential patients with severe cardiac aortic valve disease, currently excluded from surgery. A recent analysis of the heart valve market (Millennium Research Group, 2008) forecasts an increase in TAVI procedures from less than 1% in 2008, to 41.1% in 2012, with rise in relative market value from about $100m to $700m.

Intellectual Property Status

Patent regional/national stage.

Further Information

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