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Delivery System For Transcatheter Valves

Tech ID: 32170 / UC Case 2019-202-0

BRIEF DESCRIPTION

Researchers at UCI have developed a novel medical device for use in transcatheter heart valve replacement surgeries. The device provides physicians with more careful control of the catheter insertion, minimizing complications and adverse effects.

SUGGESTED USES

· For insertion of catheters in transcatheter heart valve replacement/insertion procedures.

FEATURES/BENEFITS

- Accurate control: the invention’s gimbal handle provides more robust and fine-tuned control of positioning, orientating, and expanding and contracting the prosthetic valve.
- Safer alternative: the higher accuracy afforded by this device, in turn, reduces the chance of errors and makes the overall replacement surgery safer.

TECHNOLOGY DESCRIPTION

Every year, over 5 million Americans are diagnosed with heart valve disease. As a result, people affected by a heart valve disease may need to undergo a transcatheter valve implantation procedure. These procedures can usually be a minimally invasive surgery in which a catheter is wedged into a narrowed valve. Correct valve positioning is crucial for treatment success and optimal outcomes of such transcatheter valve implantation. Most of the current technologies are limited by instant deployment of the transcatheter valve, and once the valve is deployed, repositioning and/or percutaneous retrieval is not possible, or at least difficult or potentially problematic. And if the transcatheter valve is wrongfully positioned, this creates possibly dire complications for the patient.

The researchers at UCI have developed a novel valve insertion device that provides robust control and procedural accuracy in the delivery, deployment and implantation of transcatheter heart valves. The invention may enable repositioning and retrieval of the percutaneously implanted heart valves. A key aspect of the invention relates to a gimbal handle that may be used to remotely and precisely control the expansion/contraction, position, and orientation of an expandable transcatheter valve during a surgical procedure. The gimbal handle is connected to multiple draw lines that are releasably coupled to the circumference of a valve frame of the transcatheter valve via a multi-lumen catheter. The gimbal handle may be used to evenly release or retract all draw lines that pass through the multi-lumen catheter to expand or contract an expandable valve from a collapsed state to an expanded state. The gimbal handle may also be used to generate and control differential tension in the multiple draw lines to precisely tilt the transcatheter valve with regard to pitch and yaw movements or to laterally displace the transcatheter valve relative to the multi-lumen catheter, so that optimal placement of the transcatheter valve is readily achieved.

STATE OF DEVELOPMENT

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OTHER INFORMATION

CATEGORIZED AS

- » **Biotechnology**
- » Health
- » **Medical**
- » Devices
- » Disease: Cardiovascular and Circulatory System
- » Other

RELATED CASES

2019-202-0

In vivo studies are currently underway.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	2020-035271	11/12/2020	2019-202

RELATED MATERIALS

- » [A Delivery System for Percutaneous Delivery and Implantation Of Atrioventricular Heart Valves - 12/21/2017](#)
- » [Single Ended Draw Lines For Medical Device Application - 07/12/2017](#)

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