

Magnetic Snare Endovascular Catheter System for Central Venous Stenosis

Published date: March 4, 2019

Technology description

Background

Central venous occlusion or blockage is a common and challenging clinical problem. Increased likelihood is prevalent in patients with longstanding indwelling central venous catheters (CVC), either for hemodialysis or chemotherapy. Symptoms primarily include uncomfortable facial and arm swelling, with the potential for superior vena cava syndrome. In addition, the failure of vascular access leads to the termination of dialysis, resulting in death for those unable to receive a renal transplant or utilize peritoneal dialysis. There are methods available to traverse the occlusion and recanalize or unblock the vessel. Both unidirectional and bi-directional approaches have proven to be successful, whether utilizing radiofrequency and/or a balloon catheter to traverse and dilate the occlusion; however, catastrophic consequences are prevalent in both approaches due to the amplified likelihood of vein or artery puncture. This puncture may result in massive hemorrhage, hemopericardium with cardiac tamponade, hemothorax, or retroperitoneal bleeding. Often times, these likely scenarios inhibit the willingness of Endovascular Interventionalists to attempt treatment. Thus, new techniques are required to accurately traverse the occlusion, recanalizing the vessel with minimal risks of major bleeding or hemorrhage.

Recent advances have resulted in the development of magnetic catheters capable of creating an endovascular fistula. The catheters are inserted into a neighboring vein and artery, once aligned radiofrequency signals are distributed across the vessels to create a fistula. The fistula is a bridge between the vein and artery, enabling a new access point for hemodialysis, omitting the occlusion. With the success of magnetic attraction, further methods can be developed to enhance the ease of recanalization without damaging neighboring structures.

Technology Description

A researcher at the University of New Mexico has developed a magnetic snare catheter system. The primary use of this system is to effectively traverse occlusions and recanalize the blocked vessels. By utilizing magnets, the bi-directional approach will result in more direct approximation between compartments and eliminate the potential for miscalculated guidewires. Thus, reducing the rate of

vessel wall punctures and increasing the likelihood of interventionalists to suggest and provide treatment. Additional applications may include other vascular compartment lesions such as heart defects, or the crossing of luminal structures of solid organs (percutaneous gastronomy tube).

About STC.UNM

As the technology-transfer and economic-development organization for the University of New Mexico, STC.UNM protects and commercializes technologies developed at the University of New Mexico (UNM) by filing patents and copyrights and transferring the technologies to the marketplace. We connect the business community (companies, entrepreneurs and investors) to these UNM technologies for licensing opportunities and the creation of startup companies.

Application area

Allows for precise sharp needle recanalization of the central venous occlusion or radiofrequency recanalization of the occlusion

Elimination of miscalculation and puncture of adjacent structures

Repair of additional vascular compartment lesions, such as congenital heart defects

Atrial septal defects, ventricular septal defects, patent foramen ovale

Utilization in crossing luminal structures of solid organs, particularly percutaneous gastronomy tube placement

Institution

[The University of New Mexico](#)

Inventors

[Jonathan Owen](#)

联系我们



叶先生

电话 : 021-65679356

手机 : 13414935137

邮箱 : yeyingsheng@zf-ym.com