Botox for Prevention of Arterial Graft Spasms

Published date: March 14, 2019

Technology description

Market Opportunity

Vascular bypass surgery, which redirects the flow of blood between blood vessels, is used in procedures ranging from the treatment of cerebral aneurysms to organ transplant. Typically, bypass grafts are used to establish new connections between vessels. The use of bypass grafts, however, is complicated by the risk of vessel spasms which, in extreme cases, can be lethal. Several strategies to prevent graft-associated spasms have been tested, including the usage of vasodilators and antiplatelet agents. Clinically applicable prevention methods, however, does not exist.

USC Solution

Researchers at USC have developed a clinical technique to prevent graft spasms in patients using botulinum toxin (BTX). Grafts were treated with BTX ex vivo before implantation. Patients implanted with BTX-treated grafts did not exhibit graft spasm. Further histological analysis of the treated arteries revealed no short-term adverse effects on the vessel wall. Finally, all patients had uneventful postoperative and outpatient courses, establishing that there are no post-surgical effects.

Application area

Prevention of arterial graft spasm for cerebral and other bypass applications

Advantages

Botox is both safe and FDA-approved
Patients whose grafts are treated with Botox have better surgical outcomes

Institution

University of Southern California

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