Phenoxybenzamine for Treatment of Vasospasm Radial Artery Bypass Grafts

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Technology description

Technical Summary

Vascular grafting involves the transplantation of blood vessels from one location in the body to another and is used in a wide range of cardiovascular applications, most commonly coronary bypass surgery. During the harvest of vascular tissues (arteries & veins) and following the grafting procedure, spasm within these tissues can occur. These vasospasms are dangerous and can lead to multiple complications including vasoconstriction and aneurysms while also threatening the health of the vascular tissue itself. Reducing the incidence of vasospasms is key to the outcome of vascular grafting procedures. Currently, vasospasticity can only be inhibited temporarily. Topical application of compounds such as lidocaine and papaverine prevent vasospasticity only during harvest procedures. In addition, the use of these compounds result in a high risk of endothelial damage of the prospective arterial graft segments.

This technology involves the use of a spasticity minimizing agent such as phenoxybenzamine applied topically, in a soaking solution bath or infused into a blood vessel graft to avoid unwanted vasoconstriction induced by inotropic agents such as norepinephrine during arterial grafting surgery. Using this method, a graft is harvested, treated either topically or by soaking with a compound, then rinsed and implanted. Studies indicate that this method reduces spasticity for up to 48 hours following harvesting and implantation of the blood vessel graft. Current treatments only confer short-term protection against vasospasms, increasing the possibility of post-surgical complications. This technology provides a novel target and superior protection against vasospasticity, leading to improved post-surgical outcomes following vascular grafts.

Application area

Reducing vasospasms (blood vessel smooth muscle spasms leading to vasoconstriction) during and following surgeries involving vascular grafts.

Advantages

Reduces vasospasms in arterial grafts for up to 48 hours post harvesting and implantation.
Improves long term patency of arterial graft and overall outcome to the patient.

Institution

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