Development of a local vasodilator delivery system using fibrin glue to prevent arterial graft from spasm.

Authors: Qi X.-R., Yan Y., Ma X.-D., Li T.-Y., Nie X.-Y., Yang B.-B.

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Abstract:

The clinical benefits of coronary artery bypass graft operations can be compromised by postoperative vasospasm. Traditionally, local papaverine (PPV) has been employed during the procedure to prevent and counteract vasospasm. But the relatively short action period limited its application. Fibrin glue (FG) might be a potential carrier of PPV for counteracting vasospasm in a longer action period than PPV solution. After FG incorporated with PPV (PPV-FG) was locally administrated in axillary and femoral arteries of dogs, PPV concentrations in artery vessels surrounding the administration sites were compared with the concentrations at the same sites in dogs given PPV solution. The properties of PPV's release in vitro and maintenance in vessel as well as the influence on the mean peripheral blood pressure and drug concentration in peripheral vein after the introduction PPV-FG on the surface of artery in dogs were evaluated. FG was considered to provide a sustained release of PPV and could maintain a high PPV concentration in artery vessel around the administration site. The results suggested that FG was an effective substrate for reserving PPV in the administrated site in a defined period.