Research of angiogenic therapy of myocardial infarction with intramyocardial administration of basic fibroblast growth factor

2000 Fiscal Year Final Research Report Summary

Research of angiogenic therapy of myocardial infarction with intramyocardial administration of basic fibroblast growth factor

Research Project

Project/Area Number

11671311

Research Category

Grant-in-Aid for Scientific Research (C)

Allocation Type

Single-year Grants

Section

一般

Research Field

Thoracic surgery

Research Institution

Kanazawa University

Principal Investigator

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Project Period (FY)

1999 – 2000

Keywords

Myocardial infarction / Basic fibroblast growth factor / Angiogenesis

Research Abstract

This study was designed to evaluate the effects of intramyocardial administration of basic faibroblast growth factor (bFGF) on myocardial blood flow, angiogenesis, and ventricular function in a canine acute myocardial infarction model. Myocardial infarction was induced in dogs by ligation of the left anterior descending coronary artery. Within 5 minutes after coronary occlusion, 100μg of bFGF in 1 mL of saline was injected into the infarct and border zone in 6 dogs, whereas saline alone was used in 6 control dogs. Myocardial blood flow was determined with colored microsphere before and immediately after coronary ligation and again 3, 7, 14, and 28 days after treatment. Angiogenesis was evaluated by immunohistochemical studies 28 days later. Treatment with bFGF significantly increased the endocardial blood flow in the

border zone as well as epicardial blood flow in the infarcted zone. Treatment with bFGF significantly increased the capillary density as well as arteriolar density in the border zone. Treatment with bFGF significantly reduced the change in ratio of thickness of the infarcted wall to the normal wall. It improved the left ventricular ejection fraction. Intramyocardial administration of bFGF increased the regional myocradial blood flow, reduced thinning of the infracted region, and improved ventricular function. Intramyocardial adminiastration of bFGF may be a new therapeutic approach for patients with acute myocardial infarction.

Research Products (13 results)

All | Other

All | Publications

[Publications] Michio Kawasuji: "Arterial revascularization - 18 year experience with coronary artery bypass grafting in patients with familial hypercholesterolemia."Jpn.J.Thorac.Cardiovasc.Surg.. 47. 330-334 (1999)

[Publications] 川筋道雄: "不安定狭心症に対する外科治療"循環器科. 46. 573-578 (1999)

[Publications] Yasuda Tamotsu: "Coronary artery bypass grafting in patients with hypopituitarism"Jpn.Circulation J.. 64. 207-208 (2000)

[Publications] Michio Kawasuji: "Therapeutic angiogenesis with intramyocardial administration of basic fibroblast growth factor"Ann.Thorac.Surg.. 69. 1155-1161 (2000)

[Publications] Michio Kawasuji: "Coronary artery bypass surgery with arterial grafts in familial hypercholesterolemia"J.Thorac.Cardiovasc.Surg.. 119. 1008-1014 (2000)

[Publications] Michio Kawasuji: "Near-infrared monitoring of myocardial oxygenation during ischemic preconditioning"Ann.Thorac.Surg.. 69. 1806-1810 (2000)

[Publications] 川筋道雄: "胸部外科手術のpitfallと最新術式(分担執筆)"日本胸部外科学会・学術企画印刷. 372 (1999)

[Publications] Michio Kawasuji et al.: "Arterial revascularization -18-year experience with coronary artery bypass grafting in patients with familial hypercholesterolemia."Jpn.Circulation J.. 47. 330-334 (1999)

[Publications] Michio Kawasuji: "Surgical treatment of unstable angina"Junkankika. 46. 573-578 (1999)

[Publications] Tamotsu Yasuda et al.: "Coronary artery bypass grafting in patients with hypopituitarism."Jpn.Circulation J.. 64. 207-208 (2000)

[Publications] Michio Kawasuji et al.: "Therapeutic angiogenesis with intramyocardial administration of basic fibroblast growth factor."Ann.Thorac.Surg.. 69. 1155-1161 (2000)

[Publications] Michio Kawasuji et al.: "Coronary artery bypass surgery with arterial grafts in familial hypercholesterolemia."J.Thorac.Cardiovasc.Surg.. 119. 1008-1014 (2000)

[Publications] Michio Kawasuji et al.: "Near-infrared monitoring of myocardial oxygenation during ischemic preconditioning."Ann.Thorac.Surg.. 69. 1806-1810 (2000)

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