

Effects of Unfractionated Heparin or Low-Molecular-Weight Heparin for Preventing Thrombosis after Infrainguinal Arterial Bypass Procedures

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Abstract

Unfractionated heparin or low-molecular-weight heparin for preventing thrombosis after infrainguinal arterial bypass procedures are commonly used without validation. We decided to assess both attitudes with the help of a retrospective study. We reported a non-inferiority between low-molecular-weight heparin and unfractionated heparin. It is possible to use unfractionated heparin in case of renal failure and a low molecular weight heparin when the clearance is normal because both therapies are equivalent.

Keywords: Unfractionated heparin; Low-molecular-weight heparin; Infrainguinal arterial bypass procedures

Introduction

Patients affected from chronic peripheral arterial disease frequently profit from venous or artificial graft implantation in infrainguinal position. Antithrombotic agents for preventing thrombosis are commonly used in patients receiving an artificial graft and antivitamin K antagonists in patients scheduled for venous bypass [1]. An update from the same team in 2011 concluded that controlled trials with a large number of patients were missing to determine a true decision with Antithrombotic therapies [2]. A recent survey showed multiple variations for perioperative arterial thrombosis prophylaxis amongst Dutch vascular surgeons [3].

Material and Methods

The strength of information and the existence of two protocols in our institution led us to conduct a retrospective comparative study between both groups of patients. The aim of that comparison was to statistically prove an equivalence between unfractionated heparin and low-molecular-weight heparin. We selected patients undergoing major surgery scheduled for a sub-inguinal bypass (venous or artificial) without aortic surgery associated. Patients with a renal clearance under 30 ml/min were excluded. Acetyl salicylic acid was prescribed or maintained in all patients. The study population included 66 patients distributed such as 35 patients in the low-molecular-weight heparin group and 31 in the unfractionated heparin group. The main judgment criterion was the appearance of an early thrombosis. The constitution of an hemorrhage was the second criterion. The above criteria were noticed during the postoperative follow up of 7 days. The Fisher exact test was employed to compare both groups.

Results

Groups were comparable in terms of age, sex, weight, cardiovascular risk factors and history. Results were displayed in Table 1. We reported non-inferiority between low-molecular-weight heparin and unfractionated heparin for preventing thrombosis of infrainguinal

	Unfractionated heparin (n=31)	low-molecular-weight heparin (n=35)	p
Bypass thrombosis J7	2 (6.4%)	3 (8.5%)	1 (NS)
Hemorrhage complications J7	2 (6.4%)	4 (11.4%)	0,67 (NS)

Table 1: Unfractionated heparin versus low-molecular-weight heparin.

bypass without increasing bleeding complications. The incidence of early thrombosis in infrainguinal vascular bypass surgery was reported at 4.5% [4].

Discussion

Our results were different but it was not possible to show significance.

It is possible to use unfractionated heparin in case of renal failure and a low molecular weight heparin when the clearance is normal because both therapies are equivalent.

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