

Comparison of the effects of unfractionated heparin, low molecular weight heparin and hirudin (Revasc™) on the fibrinolytic potential of cultured human umbilical vein endothelial cells

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Abstract of:

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Cultured human endothelial cells synthesize and secrete plasminogen activators tissue-type and urokinase-type plasminogen activators (t-PA and u-PA) and their inhibitor plasminogen activator inhibitor-1 (PAI-1). We have studied the effects of increased concentrations of unfractionated heparin (UFH), low molecular weight heparin (LMWH) and recombinant hirudin (Revasc™) on the fibrinolytic potential of human umbilical vein endothelial cells (HUVEC). Samples from the conditioned media were collected before and 1, 6, 24 and 48 h after addition to assess the levels of PAI activity and antigen, t-PA activity and antigen and u-PA antigen. Fibrin autography was also performed in samples collected 24 h. after stimulation. UFH induced a significant increase of u-PA with respect to controls at 24 and 48 h ($P<0.01$), whereas a dose-de-

pendent decrease in PAI activity and antigen was observed ($P<0.01$), starting one hour after the addition of UFH. There were no changes in t-PA antigen, and t-PA activity was not detected. Fibrin autography revealed no differences in t-PA/PAI-1 complexes between UFH-stimulated and control cultures. LMWH induced a significant increase ($P<0.01$) of u-PA antigen at 24 and 48 h. PAI activity was found to be slightly increased ($P<0.05$) whereas PAI-1 and t-PA antigen did not change and increase formation of t-PA/PAI-1 complexes was demonstrated. Finally, hirudin induced a moderate increase of t-PA activity at 24 and 48 h. ($P<0.01$), without changes in other parameters analyzed.

Our results show that UFH could potentiate the fibrinolytic activity of HUVEC by increasing u-PA and by decreasing PAI-1 levels. LMWH lacks the ability to reduce the PAI-1 concentration in the conditioned media but could contribute to fibrinolysis activation by increasing u-PA. Hirudin might have some delay profibrinolytic effect by increasing t-PA activity.

The histamine release test as an important complement to the diagnosis of allergic diseases

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Histamine release from basophils appears to be an extremely good in vitro marker of immediate-type hypersensitivity. This paper describes the authors studies of the use of the histamine release test (HRT) in various allergic conditions, including pollinosis, dust

mite allergy, and food allergy, and compares it with other methods, such as intracutaneous skin tests and a specific IgE test. The conclusion reached is that it is a highly reliable method for the diagnosis of diseases caused by inhalant allergens, and is also useful in food allergy. The authors suggest that the HRT should become standard practice in those allergy diagnosis laboratories which take pride in doing a good diagnosis.