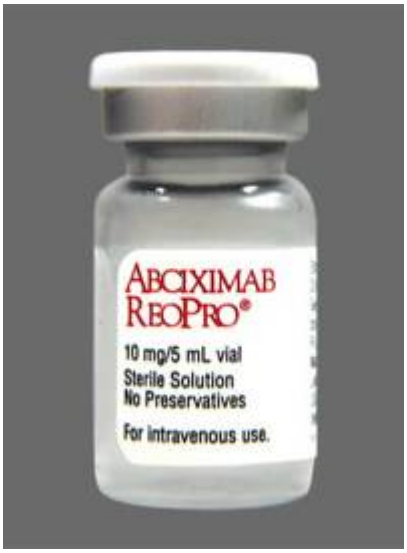
Abciximab



General information

Prevents binding of fibrinogen to platelet GP IIb/IIIa receptors. Platelet inhibition lasts up to 48 hours.

Abciximab is made from the Fab fragments of an immunoglobulin that targets the glycoprotein IIbIIIa receptor on the platelet membrane.

Abciximab (previously known as c7E3 Fab), a glycoprotein IIb/IIIa receptor antagonist manufactured by Janssen Biologics BV and distributed by Eli Lilly under the trade name ReoPro, is a platelet aggregation inhibitor mainly used during and after coronary artery procedures like angioplasty to prevent platelets from sticking together and causing thrombus (blood clot) formation within the coronary artery. It is a glycoprotein IIb/IIIa inhibitor.

Dosing

While abciximab has a short plasma half-life, due to its strong affinity for its receptor on the platelets, it may occupy some receptors for weeks. In practice, platelet aggregation gradually returns to normal about 96 to 120 hours after discontinuation of the drug [1)].

Rx: 0.25 mg/kg IV bolus over at least 1 min, 10-60 min before start of PCI, THEN

0.125 mcg/kg/min IV continuous infusion for 12 hr; not to exceed infusion rate of 10 mcg/min.

Indications and case selection

● acute endoarterial thrombus during endovascular intervention

- dissection with thrombus adherent to intimal flap
- prophylaxis for intracranial or extracranial stent implantation

In case of ruptured blister aneurysms, the Pipeline device has been used with success by administering an abciximab bolus (0.125 mcg/kg) IV, approx. 10 minutes prior to device deployment [2] [3].

Thromboembolic complications. A thrombus consequent to hardware, vessel injury blood stagnation or inadequate heparinization is apparent as a filling defect on control angiography. This can usually be readily addressed by administration of abciximab bolus of 0.25mg/kg IV over 10– 15minutes, followed by infusion of 0.125 mcg/kg/min (max. 10 mcg/min) for 12 hours. Repeat angiography 15minutes following the initiation of abciximab. If the thrombus persists, an angioplasty may be performed to flatten the thrombus against the wall of the vessel. Once blood flow is restored, its lytic properties, as well as the abciximab, may resolve the thrombus. Another consideration is to deploy a stent to restore lumen and blood flow.

Contraindications

Do not administer abciximab concurrently with tPA (potential harm)

Abciximab & other glycoprotein IIb/IIIa receptor antagonists are not recommended (potential harm)

[4].

Reversal

Discontinue abciximab infusion. Allow 10–30minutes for clearance of the drug from plasma, followed by platelet transfusion. Surgical intervention should be delayed for 12–24 hours after discontinuation.

Patel et al. evaluated the efficacy of treatment of acute thrombus formation with abciximab, as well as the results of pre-procedure platelet inhibition testing.

Acute thrombus formation was encountered in five patients following PED placement (5%). Early angiographic signs were present in all cases and included progressive stagnation of blood flow in covered side branches, occlusion of covered side branches, excessive stagnation of blood flow in the target aneurysm, as well as occlusion of the target aneurysm. These sequelae completely resolved following abciximab treatment in all five cases, with no permanent neurological morbidity or mortality. Four of the five patients had a pre-procedure P2Y12 value >200 (range 201-227).

Progressive stagnation or occlusion of covered side branches or target aneurysm are early angiographic signs of acute thrombus formation following PED placement and should prompt immediate treatment with a glycoprotein IIb/IIIa inhibitor. Platelet inhibition testing may help identify those patients who are at an increased risk for this complication [5].

A review provides a comprehensive evaluation of the current published literature pertaining to the use of all available GP IIb/IIIa inhibitors for thromboembolic complications, providing recommendations for dosing and administration of abciximab, eptifibatide, and tirofiban based on previously published rates of efficacy and intracranial hemorrhage [6].

Abciximab produces a high rate of angiographic improvement and a low incidence of postprocedural infarct in neuroendovascular procedures complicated by thromboemboli. IA abciximab produces greater angiographic improvement than IV treatment. Postprocedural infarction is less common in patients with complete angiographic response than in those with partial or no response [7].

In acute ICA-MCA/distal ICA occlusions, extracranial stenting followed by intracranial IA Abciximab and thrombectomy appears feasible, effective, and safe. Further evaluation of this treatment strategy is warranted [8].

There was no statistically significant difference in the rate of ischemic stroke or postprocedural hemorrhage with the use of abciximab compared with the use of eptifibatide in treatment of intraprocedural thrombosis [9].

Case reports

A 40-year-old man was admitted for sudden-onset headache, nausea and vomiting, and transient right arm hypoesthesia. Computed tomography scan showed a subarachnoid hemorrhage with intracerebral hemorrhage within the interhemispheric fissure, but computed tomography angiography failed to identify any aneurysms. Subsequent digital subtraction angiography with three-dimensional reconstructions revealed 1.5-mm-diameter mirror DACAAs on the A3 segments. However, the definite rupture site remained unidentifiable. After interdisciplinary consultation, endovascular treatment was favored, and complete occlusion of both DACAAs was achieved by coiling without stent placement. During coiling of the right DACAA, a thrombus in the right callosomarginal artery formed, and treatment with abciximab (ReoPro) was initiated to dissolve the thrombus. After treatment, the patient presented with right leg paresis; however, computed tomography did not show any ischemia, intracerebral hemorrhage increase, or vasospasm. Over the following days, the leg paresis improved, and the patient achieved increased mobilization. He was transferred for further rehabilitation 16 days after hemorrhage. The leg paresis had recovered to a grade 3/5.

Rapid identification of the rupture site in patients with subarachnoid hemorrhage and multiple aneurysms is crucial for initiating optimal treatment. In patients with mirror aneurysms in close proximity to each other, this is not easily accomplished, complicating treatment decisions. Although clipping has been the standard for DACAA occlusion, coiling should be taken into consideration as a viable alternative [10].

References

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