# SEVEN HILLS TIMES

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## VISION

To emerge as one of the premier pharmacy colleges in the country and produce pharmacy professional of global Standards.

## MISSION

• To deliver quality academic programs in Pharmacy and empower the students to meet industrial standards.
• To build student community with high ethical standards to undertake R&D in thrust areas of national and international standards.
• To extend viable outreach programs for the health care need of the society.
• To develop industry institute interaction and foster entrepreneurial spirit among the

## ABCIXIMAB - GLYCOPROTEIN (GP) IIB/IIIA INHIBITORS, A SYNERGETIC AGENT IN MANAGEMENT OF VASCULAR DISEASES


**Dr Robin George**


### Introduction

Glycoprotein IIb/IIIa complex is a crucial membrane receptor for platelet aggregation, binding platelets to fibrinogen and establishing interplatelet bridges. This receptor is the common end point of the multiple activation pathways of a platelet. Abciximab is a monoclonal antibody that binds to the glycoprotein IIb/IIIa complex, thus blocking the interaction with fibrinogen.

Antiplatelet agents, such as aspirin or thienopyridines, including ticlopidine and clopidogrel, inhibit one or more but not all, of these pathways.

Glycoprotein (GP) IIb/IIIa inhibitors are the strongest antiplatelet agents currently available on the market and three different compounds, namely abciximab, tirofiban, and eptifibatide, have been approved for clinical use.

Traditionally, abciximab is administered as an intravenous bolus, followed by a prolonged infusion (12 hours). Many patients undergoing PCI (both in the United States and worldwide) do not receive a GPIIb/IIIa inhibitors, in part owing to concerns about bleeding and cost. In the present era of oral thienopyridines, where patients are preloaded with a high dose of clopidogrel (300–600 mg) in order to achieve an anti-platelet effect within 2–4 hours, the relevance of a prolonged abciximab infusion may be questionable, particularly given the widespread use of stents that have virtually eliminated the problem of abrupt closure.

| Class | ACC/AHA guidelines | European task force report |
|---|---|---|
| I | For NSTEACS patients in whom an initial invasive strategy is selected. Abciximab is indicated only if there is no appreciable delay to angiography and PCI is likely to be performed.<br><br>For high risk NSTEACS patients in whom PCI has been selected as a post-angiography management strategy, it is reasonable administer abciximab if a GP IIb/IIIa has not been started before diagnostic angiography. | High risk NSTEACS patients not pretreated with GP IIb/IIIa inhibitors and proceeding PCI. |
| II | It is reasonable to start treatment with abciximab as early as possible before primary PCI (with or without stenting) in patients with STEMI.<br>Abciximab administration in high risk NSTEACS patients in whom bivalirudin was selected as anticoagulant. | Abciximab as ancillary therapy during primary PCI.<br>Stable CAD patients treated with PCI of complex lesions, threatening/actual vessel closure, visible thrombus, no/slow reflow.<br>When anatomy is known and PCI planned to be performed whitin 24 hours with GPIIb/IIIa inhibitors, most secure evidence is for abciximab. |
| III | Abciximab administration in ACS patients in whom PCI is not planned. | Abciximab is in fact unnecessary in patients treated with a non invasive strategy. |

Table: Reference trials and interpretations

| Trials | Population study | Design | Key information |
|---|---|---|---|
| EPILOG | 2792 pts receiving elective or urgent PCI | Heparin vs abciximab + heparin vs abciximab + low-dose heparin | Reduction of acute ischemic complications, without increasing the risk of hemorrhage |
| TARGET | 5308 patients scheduled to PCI | Tirofiban (RESTORE regime) vs abciximab | Lower incidence of death, re-MI, and TVR in the abciximab group |
| EPIC | 2099 pts scheduled to high risk PCI | Placebo vs only bolus abciximab vs bolus + infusion abciximab | Abciximab bolus + infusion resulted in a 35% reduction in the rate of the primary endpoint |
| EPISTENT | 2399 pts receiving elective or urgent PCI | Stent and placebo vs stent and abciximab vs POBA and abciximab | Abciximab and stent implantation confer complementary long-term clinical benefits |
| ISAR-REACT 2 | 2022 pts with ACS undergoing PCI | 600 mg clopidogrel vs 600 mg clopidogrel + abciximab | Reduction of the risk of adverse events in patients with non-STsegment elevation ACS |
| **Abbreviations:** ACS, acute coronary syndrome; MI, myocardial infarction; PCI, percutaneous coronary intervention; POBA, percutaneous only ballon angioplasty; pts, patients; TVR, target vessel revascularization; UA, unstable angina. | | | |

The majority of benefit with abciximab was derived with reduction of peri-procedural MI and a reduction in MI prior to intervention was also observed. However, this favorable effect was lost at 6 months in the whole cohort of patients. It should be emphasized that greater benefit from platelet GPIIb/IIIa inhibitor therapy is mainly seen in NSTEACS patients who present with elevated baseline cTnT levels. Indeed, in this subset of patients the rates of death or MI at 6 months were profoundly reduced in the abciximab-treated cohorts even at 6 months (9.5% abciximab vs 23.9% placebo; $p = 0.002$).

Glycoprotein IIb/IIIa blockers reduce procedure-related thrombotic complications of percutaneous coronary intervention, and the risk of death and myocardial infarction in patients with acute coronary syndromes. The effect on risk of death and myocardial infarction is particularly apparent in patients undergoing early percutaneous coronary interventions. Although the explanations and findings from various studies are unclear, that indicates that abciximab is not beneficial as first-line medical treatment in patients admitted with acute coronary syndromes. Thus, the American College of Cardiology (ACC)/American Heart Association (AHA) guidelines give a class III recommendation (either not effective nor potentially harmful) for the addition of abciximab to standard anti-thrombotic therapy in patients in whom PCI is not planned.

**CONCLUSION:**

There is increasing evidence from the above trials stating that, the treatment with clopidogrel prior to PCI prevents postprocedural ischemic complications. Several studies have shown that a 600-mg loading dose of clopidogrel, compared with the usual 300-mg dose, is as safe and is significantly more rapidly acting. However, it is known that the antiplatelet effect provided by 600 mg of clopidogrel is not sufficient for patients with STEMI or moderate-high risk ACS undergoing PCI. Thus, GPIIb/IIIa inhibitors show a critical role in the current management of high-risk patients. Accordingly, abciximab is recommended by the American College of Cardiology/American Heart Association and European Society of Cardiology guidelines as give a class III recommendation as standard anti-thrombotic therapy in patients in whom PCI is not planned. It is plausible that in the future the abciximab bolus-only scheme for facilitating PCI may become a more widespread choice to maintain efficacy while minimizing safety and costs.

## Departmental Activities December-2022:

| No of Patients Screened | Drug Information Queries | Adverse Drug Reactions | Medication Errors | No of Prescriptions Audited |
|---|---|---|---|---|
| 1387 | 29 | 34 | 02 | 1255 |