

# Reverse Percutaneous Coronary Intervention Without On-site Cardiac Surgery and Interventional Cardiologists

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**Background:** Patients with significant coronary artery lesions usually receive treatment in percutaneous coronary intervention (PCI)- capable hospitals with on-site cardiac surgery support. The Reverse PCI Study assessed the feasibility of PCI through interventionalist-transfer strategies in centers without on-site cardiac surgery. However, this strategy has not been adequately studied.

**Methods:** This was a cross-sectional observational study done on 443 patients with coronary artery disease (CAD) in a center without on-site cardiac surgery and interventional cardiologists. Patients with acute or chronic coronary syndrome undergoing coronary angiography (CAG) followed by PCI at the Border Guard Hospital (BGB), Dhaka, Bangladesh, were initially screened by the on-site clinical cardiologists. The "Reverse PCI team" team consisting of interventionalists, cathlab technicians and nurses, moved from elsewhere to the BGB hospital, re-evaluated the initially selected cases, and finally performed PCI there. Among 443 patients, 436 patients had undergone CAG. Thereafter, PCI was done in 187 patients and 34 patients were recommended CABG. The patients were followed up during hospital stay and at 6 months, 12 months, and 24 months. Data were analyzed by SPSS 20.

**Results:** Most of the patients were male (94.13%) and 52.59% patients were from age group 51- 60 years. The majority of the patients had chest pain (94.14%) with some other cardiac symptoms. HTN (56.74%), DM (38.93%), Smoking (30.78%) and Dyslipidemia (29.26%) were the main risk factors. Different types of ACS like STEMI (20.31%), NSTEMI (7.22%), UA (9.02%) were found among the patients. ETT positive were 25.73%. CAG findings were normal for 47.04% & block were found on 52.95% of cases. Among them, Single Vessel Disease was 21.33%, Double Vessel Disease was 21.55%

and Triple Vessel Disease was 9.17%. PCI and CABG were done in 187(42.88%) and 34(7.79%) patients, respectively. No emergency arose during PCI and angiogram procedure. Only 22 patients had coronary artery spasm, 13 had access-site hematoma, 14 had hypotension, 8 had slow flow, no flow, 4 had radial artery dissection, 2 had malignant arrhythmia and 1 had coronary artery dissection during the procedure. In-hospital complications were angina (11), heart failure (3) & breathlessness (3). During 24-months follow up, there was no death, 6 had re-hospitalization and & 1 had non target vessel infarction. Target vessel revascularization was done on 1 patient during follow-up.

**Conclusions:** Proper preprocedural assessment supports the effectiveness and safety of interventionalist-transfer strategy for PCI. Our study is reasonably safe and effective in non-PCI-capable hospitals with Cath Lab facilities and without on-site cardiac surgery where the standard PCI can't be ensured. Hence, there is a compelling need for extensive research on a broader scale.

**Clinical Implications:** As there are resource constraints, employing the interventionalist-transfer strategy for PCI can enhance the care of patients on a larger scale who arrive at non-PCI-capable hospitals equipped with Cath Lab facilities but lacking on-site cardiac surgery in Bangladesh. The interventionalist-transfer strategy involves skilled interventional cardiologists performing PCI procedures at these non-PPCI-capable hospitals. This approach optimizes the utilization of available resources and expertise, potentially reducing delays in critical care and improving outcomes for patients with coronary artery diseases in Bangladesh.

**Keywords—** interventionalist-transfer strategy, PCI, coronary artery disease, resource-limited settings, Bangladesh, coronary angiography, CABG