



IMPACT OF CORONARY COLLATERALS AS SUCCESSFUL PERCUTANEOUS CORONARY INTERVENTION AN ANGIOGRAPHIC STUDY

Cardiology

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ABSTRACT

BACKGROUND: Coronary collaterals or “natural bypasses” are an anastomotic connections that offers an important alternative source of blood supply when the original vessel fails to provide sufficient blood. However, the fate of well-developed collaterals immediately after a successful PCI is not clear. This study is to see the fate of collateral circulation after PCI.

METHODS: Thirty patients with diagnosed collateral circulation were taken for study. Collateral vessels were assessed using Rentrop grading. Angiograms were taken before and just after PCI.

RESULTS: Mean age of patients was 62.5yrs. Eighteen patients were having acute MI (ACS) and twelve patients were chronic total occlusion (CTO) cases. Sixteen patients were having single vessel disease and fourteen patients double vessel disease. Twenty patients were having LAD to RCA heterocollaterals, two had RCA to RCA collateral (bridging collateral), and two had RCA TO LAD collateral and six homocollaterals LAD to LCX. Out of thirty patients, twenty six had Rentrop grade 2 and four had grade 3 collaterals as visualized angiographically. After PCI, angiogram was done on vessel supplying collateral, twenty six patients had complete disappearance of collaterals immediately after PCI, and four cases had persisting collaterals. In 26 patients post PCI rentrop grading reduced to grade 0 and in four patients rentrop grading reduced to grade 1. All the cases with rentrop grade 0 had TIMI III flow after PCI. Four patients who had persisting of collaterals had TIMI II flow.

CONCLUSION: We observed that there is an immediate impact on the quantum of coronary collaterals after PCI on all patients. Majority of them had complete regression of collateral circulation. There was a correlation between TIMI III flow disappearances of collaterals. It is probable that immediate disappearance of coronary collateral circulation could be one more index for successful PCI, which needs further evaluation.

KEYWORDS

INTRODUCTION:

The coronary arteries represent the end circulation of the heart, However, collateral vessels can form under specific circumstances. Collateral blood vessels are anastomotic connections between two segments of the same artery or between different native coronary arteries. They function as natural bypasses and represent an alternative source of blood supply for a coronary territory. Clearly, collateral circulation becomes very Important in the event that the main vessel serving the territory becomes occluded Coronary collaterals or “natural bypasses” are an anastomotic connections that offers an important alternative source of blood supply when the original vessel fails to provide sufficient blood. Collaterals actually prolong duration of myocardial ischemia after acute occlusion of coronary arteries.

MATERIALS AND METHODS:

This is single centered cross sectional study in our hospital RGGGH, who underwent diagnostic coronary angiogram from period of November 2017 to May 2018. Patient coronary angiogram showing collaterals are randomly selected and analyzed which included both MI and CTO patients. Their collaterals carefully analyzed according to rentrop grading and analyzed according to their connecting vessels as LAD TO LCX, RCA TO RCA as intracoronary (homocollaterals) or RCA TO LAD , LAD TO RCA as intercoronary (heterocollaterals), CAG done before and after PCI and fate of collaterals analyzed according to rentrop grading.

RESULTS:

Thirty patients with diagnosed collateral circulation were taken for study. Mean age of patients was 62.5yrs. Eighteen patients were having acute MI (ACS) and twelve patients were chronic total occlusion (CTO) cases. Sixteen patients were having single vessel disease and fourteen patients double vessel disease. Twenty patients were having LAD to RCA heterocollaterals, two had RCA to RCA collateral (bridging collateral), and two had RCA TO LAD collateral and six homocollaterals LAD to LCX. Out of thirty patients, twenty six had Rentrop grade 2 and four had grade 3 collaterals as visualized angiographically.

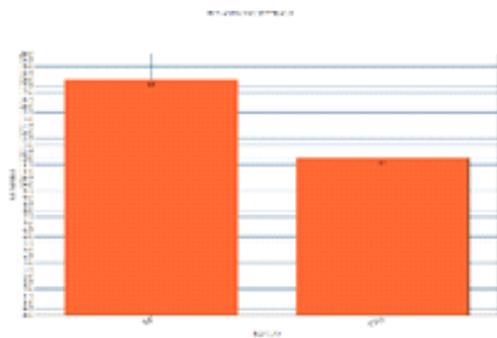


CHART : 1

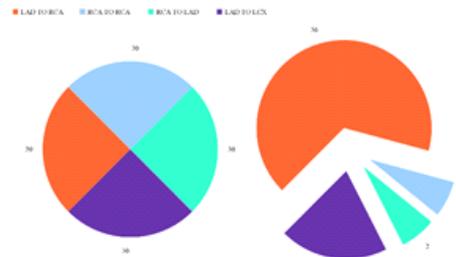


CHART : 2

FIG : 1

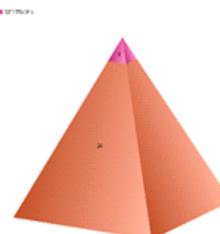


FIG : 2



DISCUSSION :

After PCI, angiogram was done on vessel supplying collateral, twenty six patients had complete disappearance of collaterals immediately after PCI, and four cases had persisting collaterals.

In 26 patients post PCI rentrop grading reduced to grade 0 and in four patients rentrop grading reduced to grade 1. All the cases with rentrop grade 0 had TIMI III flow after PCI. Four patients who had persisting of collaterals had TIMI II flow.

CONCLUSION:

There was a correlation between TIMI III flow disappearances of collaterals. It is probable that immediate disappearance of coronary collateral circulation could be one more index for successful PCI, which needs further evaluation.

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