

Received date: 24-04-2023 | Accepted date : 02-05-2023 | Published date: 07-07-2023

ABO blood groups and its association with patients presenting with acute coronary syndrome, tertiary center experience

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Introduction: The ABO blood groups have a profound influence on hemostasis, and there is a close relationship between venous thromboembolism (VTE) and non-O blood type. There has been some conflicting evidence about the association between various blood grouping and coronary artery disease. Residents in Qatar presenting with significant coronary artery disease (atherosclerotic and thrombotic) at much younger age group than other parts of the world.

Objective:

1. To study the presence of coronary angiographic atherosclerosis vs thrombus in patients with various ABO blood groups and
2. To study the MACE (Major Adverse Cardiac Events) in various ABO blood groups, during the index admission and 30 days following for acute coronary syndrome (ACS).

Materials and Methods: This retrospective study was conducted at Heart Hospital, a tertiary Hospital from January 2013 to December 2018 in patients presenting with ACS. The information was collected from electronic record (CERNER) of Percutaneous Coronary Intervention (PCI) database. All consecutive patients of both genders with more than 18 years of age admitted with acute coronary syndrome were included in whom ABO blood groups were available. The data was analyzed with a statistical package for social sciences SPSS version 20 for windows.

Results: A total of 3738 patients underwent coronary angiogram and PCI procedure at Heart Hospital Cath lab during this period. 3040 patients were eligible for the study. The mean age of study population was 49.5±10.45 years. 2900(95.4%) were male. Diabetes mellitus was observed in 1184(38.9%) patients. 1072(35.3%) patients were hypertensive. Smoking was seen in 1485(48.8%) patients while 392(12.9%) patients were dyslipidemic. At the time of presentation 1584(52.1%) patients had anterior wall MI, 1350(44.4%) had inferior wall MI, 74(2.4%) lateral wall MI and 32(1.1%) had posterior wall MI. Among the study population blood group O was observed in maximum number of patients 1006(33.1%), {O positive 947(31.2%), O negative 59(1.9%)}, followed by blood group B, 952(31.3%), { B positive 907(29.8%), B negative 45(1.5%)}, then group A, 866(28.5%), { A positive 817(26.9%), A negative 19(1.6%)}, and lastly AB, 216(7.1%), {AB positive 200(6.6%) and AB negative 16(0.5%)}. On analysis of the type of occlusion, thrombotic coronary occlusion was observed in 1961(64.5%) and atherosclerotic was seen in 942(31%) patients. In order to study the association of ABO blood groups with thrombotic or atherosclerotic coronary occlusion Chi Square test was applied. Thrombotic occlusion was observed in 531(67.2%) A positive, 34(72.3%) A negative, 579(66.7%) B positive, 32(80%) B negative, 610(66.8%) O positive, 38(65.5%) O negative, 124(64.9%) AB positive and 13(81.3%) AB negative with a nonsignificant association, p value (p=0.584). Atherosclerotic occlusion was observed in 255(32.3%) A positive, 12(25.5%) A negative, 286(32.9%) B positive, 8(0%) B negative, 294(32.2%) O positive, 20(34.5%) O negative, 64(33.5%) AB positive and 3(18.8%) AB negative with a p value (p=0.597)

Conclusion: Majority of patients presenting with acute coronary syndrome have O blood group. There was a nonsignificant association among ABO blood groups and thrombotic or atherosclerotic coronary occlusion.

Biography

Jassim Shah is a consultant cardiologist and Heart failure, trained in Advanced heart failure, transplant and mechanical circulatory support, his main interest is improving care and quality of life of patients with heart failure.

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