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Even Young Healthy Looking Adults are not Spared

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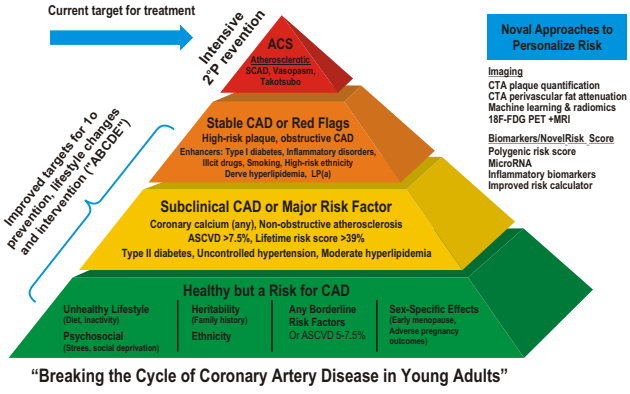
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Every year 29th September is observed as World Heart Day. The purpose of observing this day on yearly basis is to create awareness among the general population regarding the preventive aspects of ischemic heart diseases (IHD), and motivate them to seek early medical care.

Globally IHD mortality decreases with increasing health related awareness, early seeking of health advice, better diagnostics and much better prompt and appropriate interventions, but the consequences of premature IHD are devastating.[1] The average age of IHD in Europe and North America is 65years and that of Asian population is 56 years,[2] but there is a rising trend of IHD in younger population, especially in males.[1-4] Different researchers have defined younger age group in their studies, but the minimum age group defined in literature is less than 35years.[5]

It is important to know the conventional and non-conventional risk factors. Literature has reported male gender, family history of IHD, increased cholesterol, high blood pressure, diabetes Mellitus, smoking, and chronic inflammatory/ immunosuppressive diseases as the common risk factors for IHD, even no risk factor was documented in 40% of population.[1-5] Acute coronary syndrome, Spontaneous Coronary Artery Dissection, IHD in pregnancy, Myocardial infarction with non obstructive coronary arteries (MINOCA), Coronary Artery spasm, coronary artery microcirculation dysfunction were reported in female population with <54years of age by Minissian MB et al,[3] even higher mortality was reported in females with age <54years as compared to same age me.[4] A higher IHD mortality trend was reported in recent past by Ananth CV et al and was attributed to; IHD risk factors were higher in ethnic minorities and racial groups, high CVD complications related to pregnancy.[6] blood pressure, diabetes Mellitus, obesity and Recurrence in younger population was attributed to not well control of conventional risk factors (hypertension, diabetes Mellitus, smoking), multivessel coronary artery disease, Asian or sub sahara African ethnicity and inflammatory diseases,[7] 48% were not taking high statin therapy.[8]

Identifying the young healthy population, that who are at risk of IHD is challenging, as most of IHD risk calculators have not identified the young healthy individuals to put on primary prevention strategy.[9] The presence of "Red Flags" like conventional risk factors, family history of premature IHD, HIV infection, Chronic Kidney diseases, chronic inflammatory diseases, immunocompromised conditions, history of pre-eclampsia, south Asian ethnicity, higher fibrinogen/homocysteine levels and elevated lipoprotein (a) may be considered for therapeutic life style modification and primary prevention strategies as per contemporary guidelines.[8] Use of coronary artery calcium score (CAC Score) by using non contrast CT Coronary Angiography may be another modality to asses young asymptomatic adults. Different studies have shown that CAC Score of >0 ranges from 10%-34% in asymptomatic young healthy individuals and carries significant morbidity and mortality in long rum.[10,11]



"Breaking the Cycle of Coronary Artery Disease in Young Adults"

Fig.01 Breaking the cycle of Coronary Artery Disease in Young Adults[5]

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When the CVD are associated with pregnancy, the feto-maternal outcomes are compromised. To decrease the CVD mortality associated with pregnancy, a pre-pregnancy CVD assessment can be done by applying CARPREG II score (Cardiac Diseases in Pregnancy Study).[12]

Looking to the future, the key to aging well is to start young.[13] There is on-going research work to clearly understand this paradigm shift of IHD from comparatively middle to advanced age group to a younger healthy looking adults. One such current study is SCOT-HEART 2 (Computed Tomopraphy Coronary Angiography to prevent Myocardial Infarction Trial):NCT03920176, intends to induct 6000 persons who are at risk of Atherosclerotic CVD (ASCVD) and determine whether risk-score guided approach or CCTA guided approach reduces Major Adverse Cardio/Cerebrovascular Events (MACE). Another study Eliminate Coronary Artery Disease Trial (ECAD):NCT02245087, inducting 10,000 individuals, i-e; men 35-50 years, women 45-59 years), with LDL-C =70mg/dl, who are not fit for cholesterol lowering drugs on the basis of available published guidelines. The study will look into whether atorvastatin 20mg one OD versus guidelines based management alone will decrease MACE.

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