



Efficacy of 'Healthy & Happy Heart Lifestyle Module' in regression of coronary atherosclerosis and reduction in coronary events among patients with angiographically documented moderate to severe coronary artery disease. - a, prospective, multidisciplinary randomized study - Abu Healthy Heart Trial (AHLT)

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Key words: HLS: Healthy & Happy lifestyle; CAD: Coronary artery diseases; CAG: Coronary angiography; USA: Unstable angina; MI: Myocardial Infarction; CABG: Coronary artery bypass surgery; PTCA: Percutaneous transluminal coronary angioplasty

CONTEXT: The Mount Abu Open Heart Trial (MAOHT) demonstrated that proper adoption & maintenance of user friendly healthy & happy lifestyle program (conceived and developed at J. Watumull Global Hospital and Research Center, Mount Abu) can lead to highly significant regression of Coronary atherosclerosis after two years and reduction in number of coronary events over a follow up period of 4.63 (0.63) years (range 3.86-5.84 yrs) as per program adherence in a 'dose response manner'.

AIM AND OBJECTIVE: To determine the efficacy of healthy & happy lifestyle program in regression of coronary atherosclerosis and reduction in coronary events in patients with angiographically documents moderate to severe CAD in a randomized controlled multidisciplinary trial in which psychologists, physiologists, endocrinologists, cardiologists, cardiologists, clinicians, nutritionists , fitness experts and spiritualists worked hand in hand for more than six years.

DESIGN: Randomized controlled trial conducted from April 2000 to December 2003 using a randomized invitational design.



PATIENTS: 217 patients with moderate to severe CAD were randomized to healthy lifestyle group (n=112) or to a control group (n=105). All patients were asked to undergo repeat angiography after completion of one year of follow up. 179 patients completed about 3 years of follow up for assessment of various clinical parameters and coronary events.

SETTING: Three tertiary medical centers, Global Hospital & Research Center, Shantivan Complex, Abu Road.

INTERVENTION : Healthy Lifestyle Group : healthy & happy lifestyle program, which essentially consisted of intense information, education & counseling about CAD & training in healthy lifestyle change : 1 Stress Management through Rajyoga which basically involves in consciousness from body /role conscious (I ness & my ness which lead to type 'A' behavior, anxiety, hostility cynicism, fear, anger, insecurity, depression, isolation, lack of emotional support, lack of social support, job stress, family stress etc.) to inner self/soul conscious [Health/ Swasth = Swa (innerself) + sth (conscious)] which means being peaceful & loveful in thoughts, words & action working in home or office ; 2. Low cholesterol high fiber vegetarian diet; 3. Moderate aerobic exercise & usual medical care.

Making them responsible for their own health [Health = Heal + Thyself]

Main out come measures: Adherence to HLS program (100% adherence was given score of 1.00) change in coronary artery diameter diameter stenosis & cardiac events.

Symptom score, drug score, exercise tolerance, left ventricular ejection fraction, lipid profile, blood sugar fasting, glycosylated hemoglobin, weight, body mass index, psychological profile : Type 'A' behavior, anxiety, depression, anger, lifestyle change score, overall feeling pf well being score.

Results : HLS group patients 106 (93.75%) out of 112 adopted & maintained healthy lifestyle changes for about 3 years follow up (71 underwent repeat coronary angiography after one year), where as control group patients 74 (70.48%) out of 105 patients completed 3 years follow - up (37-underwent repeat coronary angiography after one year).

Highly significant reduction in symptom score, drug score, (P < 0.0001), lipid profile parameters (P < 0.001), improvement in exercise tolerance (P < 0.0001), left ventricular ejection fraction (P < 0.00001) & overall healthy improvement in psychological behavioral pattern (P < 0.001).

474 coronary lesions (HLS group n=312; control group n=162) were analyzed by an independent panel of 2 angiographers (percentage diameter stenosis was measured by electronic digimatic caliper method, Mitutoyo, Japan).



In HLS group the average % diameter stenosis at baseline decreased from 70.11 (19.04) % to 58.29 (23.26) %, that is regression of 11.82 absolute percentage points after one year (a 16.86 % relative improvement; $P < 0.0001$). In contrast, the average % diameter stenosis in the control group increased from 64.50 (21.82) % to 69.02 (21.49) %, after one year ($P = 0.086$) $P < 0.0001$ between groups.

The average lesions change score in the HLS group were in the direction of regression in 67.6(2.96 %) out of 71 patients & 44.09 % lesions in this group showed more than 10% absolute reduction in % diameter stenosis.

9 cardiac events occurred in 112 HLS group patients vs 35 events in 105 control group patients during the 2.89 (0.63) years of follow-up [Risk ratio for any event for the control group 5.86 (95 % confidential interval 2.81 -7.94); $P < 0.00001$]

In HLS group change in % diameter stenosis & no of cardiac events were strongly related to overall program adherence in a 'dose response manner.'

CONCLUSION: HLS group patients showed highly significant regression of coronary atherosclerosis, in contrast in the control group coronary atherosclerosis continued to progress over a period of one to two years practical application of Rajyoga motivated the CAD patients to make healthier changes in diet, exercise patterns & also significantly controlled clinical symptoms, psychological risk factors of CAD & increased the feeling of well being.

More over number of cardiac events in control group was about four times more than the HLS group.

Hence if this HLS program is applied to a large population may help in prevention, decreasing morbidity & mortality due to epidemic of CAD.

Limitations of the study: all the patients in both the group did not undergo repeat coronary angiography in spite of earlier informed consent & requests by the investigators.

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