

Angiographic Results and Patient Risk-factor Differences between Indian-Jews and non Indians on First Time Coronary Angiography.

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Background: Asian Indian ethnicity is known to be associated with higher rates of metabolic syndrome, diabetes and coronary artery disease (CAD). It is unclear whether Jews who emigrated from India also have a higher prevalence of CAD compared to the non-Indians population in Israel.

Objectives: To compare the demographic, clinical and angiographic results of Jewish Indian and non-Indian patients referred for a first time coronary angiography (CA) for suspected CAD.

Methods: A retrospective analysis of registry data from a cardiac catheterization lab in a tertiary hospital between January 2000 to December 2006. Patients referred for catheterization for indications other than suspected CAD, as well as patients who had a previous catheterization were excluded from the study.

Results: Between January 2000 to December 2006, 8886 consecutive patients aged 18 to 96 years (248 of Indian Jewish origin and 8638 of non-Indian origin) performed a first time ever CA in our hospital. The Indian Jews compared to non-Indians, were younger (average age 57.9 ± 10.9 vs. 62 ± 12.5 years respectively, $p < 0.0001$), had more diabetes (42.3% vs. 34% $p = 0.008$) and had a trend towards a higher prevalence of any CAD (91.9 % vs. 88.4%). There was a non-significant trend towards a higher prevalence of multivessel disease in Indian Jews patients below age 40 and in males, but not in females. In a multivariate analysis age, gender, diabetes and Indian ethnicity were independent risk factors for the presence of CAD on angiography. (OR for male sex, diabetes and Indian ethnicity were 4.5, 2.8, and 1.9 respectively).

Conclusions: Indian Jews referred for a first-time CA are younger and have a higher prevalence of diabetes and angiographic CAD compared to non-Indians patients. Although the possibility of a bias in referral pattern of this patient population cannot be excluded, our results suggest the need for a more intensive preventive strategy for diabetes and CAD in Indian Jews

Coronary Artery Disease in an Asymptomatic Population Undergoing a Multidetector Computed Tomography Coronary Angiography

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Background: Non-invasive coronary imaging using multidetector computed tomography (MDCT) has emerged as a diagnostic tool that permits assessment of the coronary lumen and coronary plaques. Few data on coronary artery disease in asymptomatic patients who are at risk for coronary atherosclerosis are available.

Objective: To assess the prevalence of Coronary Artery Disease (CAD) using MDCT coronary angiography in asymptomatic subjects and its relationships to demographic and clinical risk factors.

Methods: A consecutive asymptomatic volunteers with no evidence of ischemic heart disease underwent MDCT at our institute for the early detection of CAD. Data regarding demographic, cardiovascular risk factors, drug treatment, and previous cardiac investigations were collected from all subjects. For each subject the number of diseased coronary segments, segments with obstruction lesions; defined as significant (diameter stenosis $\geq 50\%$) and non-significant (diameter stenosis $\leq 50\%$), and the number of each type of plaque (soft, calcified, or mixed) was determined. All MDCT findings were correlated with demographic and risk factors.

Results: A total of 2820 coronary segments were analyzed in 188 asymptomatic subjects including 150 males and 38 females aged 54.4 ± 7.4 years. One hundred twenty eight (68%) demonstrated MDCT findings compatible with CAD; of these 111 (86.7%) had non-significant and 17 (13.3%) had significant CAD. The total number of coronary segments with atherosclerotic plaques was 454 (16.5%); of which 147 (32.4%) had calcified, 123 (27.1%) had soft and 184 (40.5%) had mixed morphology. Compared with older subjects (mean age 56 ± 8 years), younger subjects had a lower prevalence of MDCT findings of CAD 55.5% vs. 12.5%, respectively ($P < 0.001$), regardless of risk factors. Males had more CAD (mostly non-significant) compared with females (109 [72.7%] vs. 19 [50.3%], respectively; $P = 0.007$). Subjects with ≥ 2 risk factors had a higher prevalence of CAD in general and significant CAD in particular ($P < 0.001$).

Conclusions: CAD in asymptomatic population seems to be not uncommon. Using MDCT coronary angiography a high prevalence of non-significant and low prevalence of significant CAD was discovered in middle age asymptomatic population. CAD was related to older age and number of risk factors.

Cost-utility Analysis of a National Project to Reduce Hypertension in Israel

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Background: This study aims to calculate the health effects and costs of a proposed national hypertension prevention and control program.

Methods: Interventions are based on experience from our two programs: 10-year period of Ashkelon Hypertension Detection and Control Program (AHDC Program) and the Israel Blood Pressure Control (IBPC) program. The costs of a nationwide program were calculated based on economic data, training staff levels, course frequency and unit costs.

Results: Over the next 20 years, the program should decrease the risk in one-half of the treated hypertensive cases of the following ailments: -cardiovascular events such as Acute Myocardial Infarction (AMI) and Unstable Angina Pectoris (UAP) by 16.0%, stroke by 41.2%, End stage renal disease (ESRD) by 50.0% and peripheral vascular disease (PVD) by 42.6%. This translates into a decrease in incidence of 8749 fewer AMIs (543 fewer deaths), 6765 fewer UAPs (145), 8074 fewer strokes

(1,114), 2316 fewer ESRD (440) & 8134 fewer PVD. In total, around 2,242 lives, 35,117 years of life or 24,433 disability adjusted life years will be saved due to decreased mortality. Program costs amount to \$352.7 million. However savings (\$537.6 million), from reduced medical treatment (\$444.3 million) and reduced pharmaceutical use (\$93.3 million) as a result of morbidity decreases, exceed costs by \$185.0 million.

Conclusions: our study shows that a national health education program is likely to save over two thousand lives, improve the quality of life in many more people and at the same time actually save \$185.0 million in health care resources alone.

The Cost Burden of Drug Therapy in Cardiology

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Background Patients hospitalized in Cardiology Departments often suffer from complex medical conditions. They are discharged with many drugs targeting the cardiac disease itself, the risk factors and the associated pathologies.

Purpose of the study To evaluate prospectively the financial burden associated with drug prescription.

Methods We evaluated 83 consecutive patients discharged from the Department of Cardiology who gave informed consent. We calculated the monthly cost of the treatment prescribed in the discharge letter. Medication cost was calculated according to the price published on the Internet by one of the major Kupoth Holim (highest cost). The cost was also calculated according to the discounts given by the Kupoth Holim according to the National Health Law (lowest cost).

Results There were 73 men and 10 women. Mean age was 60.1 ± 12.8 years. The admission was through the Emergency department in 48 subjects and elective in 35.

Mean number of drugs prescribed per patient was 6.4 ± 2.7 . The monthly cost of drugs was 679.4 ± 357.4 NIS per patient (highest cost) and 137.2 ± 61.0 NIS (lowest cost). We assume that many patients would be recognized as having a chronic disease, in which case the maximum monthly cost to the patient could not exceed 240 NIS (according to the National Health Law). Using the lowest estimate, 10 patients had monthly payment >240 NIS.

Of the 83 patients, 41 were living on pensions and 38 were still working. Four refused to answer the question. Monthly income for people living on pension alone can be as low as 1373 NIS/month and would be for example 3230 NIS (minus 322 NIS for health insurance) for a couple receiving a Social Security pension of the elderly.

Conclusion Although most patients receive substantial discounts, the cost-burden of medications is important considering that many patients subsist on very low incomes.

**Prevalence of the Metabolic Syndrome in Individuals
with Normal Concentrations of Liver Enzymes.
An Additional Step Towards Early Recognition of Dysmetabolism**

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Objective: Metabolic syndrome (MetS) is frequently characterized by the appearance of elevated liver enzymes and especially gamma-glutamic transferase (GGT). We have presently addressed the question of the prevalence of the MetS in a cohort of apparently healthy individuals and within normal limits liver enzymes.

Methods: A cross sectional study in a group of apparently healthy individuals with within normal limits liver enzymes values and following exclusion of diseases and medications that may effect the concentration of liver enzymes.

Results: We have presently analyzed a cohort of 3,361 men and 1,690 women at a mean+SD age of 44+11 years. The most remarkable finding was observed in relation to GGT where the prevalence of MetS increased from 2.9% in the first quintile to 13.8% in the fourth one, all the five quintiles being in the normal range for this enzyme. A logistic regression analysis for the presence of MetS in relation to the quintile of this liver enzyme showed an odds of 5.3 and 3.9 between the first (GGT <9 and <6) to the fourth (16<GGT<20 and 11<GGT<14) in men and women respectively.

Conclusions: A relatively high prevalence of the MetS can be noted in a cohort of apparently healthy individuals who have within normal limits concentration of liver enzymes. A practical consequence might be therefore the follow-up of these enzymes as continuous variables and to take into consideration that even relatively small changes within the normal range might reflect the presence of dysmetabolism.

Resting Heart Rate Is Significantly Associated With the Metabolic Syndrome - an Additional Connection Between Resting Heart Rate and Cardiovascular Disease

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Objective: To explore the possibility that increased resting heart rate (RHR) is associated with the prevalence of the metabolic syndrome (MetS) in a cohort of apparently healthy individuals and those with atherothrombotic risk.

Methods: A cross-sectional analysis in a relatively large cohort of apparently healthy individuals who attended a general health screening program.

Results: In a cohort of 3907 men and 1980 women, the multi-adjusted odds for the presence of the MetS increased gradually from an arbitrary defined figure of 1.0 in the lowest RHR quintile (<60 beats per minute (BPM) in men and <64 BPM in women) to 4.45 and 4.31 in men and women respectively in the highest one (≥ 80 BPM in men and ≥ 82 BPM in women).

Conclusion: Raised resting heart rate is significantly associated with the presence of MetS in a group of apparently healthy individuals and those with an atherothrombotic risk. The strength of this association supports the potential presence of one or more shared pathophysiological mechanisms for both RHR and the MetS.

Cardiovascular Disease Characteristics among Elderly in a Consultant Outpatient Cardiac Clinic.

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Cardiovascular diseases (CVD) are increasing with age. Therefore elderly patient visits are becoming more frequent in outpatient cardiac clinic.

Aim: to report cardiovascular (CV) pathologic characteristics among elderly > 70 year , visiting in outpatient cardiac clinic.

Patients and Methods. We report CV pathologies, risk factors and medications in consecutive new patients over a two months period.

Results. Two hundred and ninety patients were included: 139 (47,9 %) were older than 70 years. The CV pathologies are summarized in the table.

	> 70 y N. Pts 139 (%)	< 70 y N. Pts 151 (%)	
Aortic Stenosis	14 (10)	2 (1.3)	0.001
Mitral Valve disease	8 (5.7)	12(7.9)	n.s
S/P AVR	6 (4.3)	2 (1.3)	ns
S/P CABG	26 (18.7)	8 (5.3)	0.0004
S/P Myoc. Infarct.	35 (25.2)	26(17.2)	ns
Angina Pectoris	36 (25.9)	16(10.6)	0.0003
Cong. Heart Failure	21 (15.1)	4(2.6)	0.0002
Chronic Atr. Fibril.	14 (10.1)	4(2.6)	0.001
Parox. Atr. Fibril.	24(17.3)	8(5.3)	0.0003
Hypertension	102(73.4)	50(33)	0.0001

The mean number of medications was 3.5 in the elderly and 2 in the younger patients.

Beta blockers were the most frequent used cardiovascular drug both in the elderly (57,7%) and in the younger patients (43%) (p=0.004).

Conclusions. Patients ≥ 70 years represent about half of the visits in out patient clinic. The multiple CV pathologies and their therapeutic related needs in this group raise the issue of developing geriatric cardiology service.

Has Abdominal Obesity any Clinical Significance in Patients with Active Coronary Artery Disease?

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Background - In the past 20 years, obesity and diabetes have overtaken cigarette smoking, dislipidemia, and hypertension as risk factors for coronary heart disease. Overweight and obesity increase the risk for hospitalization and death from cardiovascular disease and diabetes at all levels of risk and independently of other risk factors. Abdominal obesity, assessed indirectly by measuring waist circumference (WCi), is associated with clustering of cardiovascular and metabolic risk factors known as the metabolic syndrome. Patients with even minimal abnormalities in any 3 of the 5 risk factors for the metabolic syndrome are at heightened risk for CVD or diabetes. Obesity is also associated with coronary artery calcification, a marker of the presence and extent of subclinical coronary atherosclerosis. Similarly, physical fitness and several exercise related indices are associated with prognosis in CAD patients.

Aim – To assess the association of abdominal obesity with exercise parameters which are related to prognosis in patients with active coronary artery disease (CAD).

Methods – The association between WCi and heart rate reserve (HRR), Recovery heart rate (RecHR), VO₂max, Mets, exercise duration (EXd), peak oxygen pulse (OP), rest & peak exercise HR, BP, Borg Scale, and functional class (F.C.) has been evaluated in 91 consecutive patients participating in a 12 week cardiac rehabilitation training program.

Results – No correlation was found between WCi and HRR, RecHR, VO₂max, Mets, EXd, peak exercise HR & BP, or F.C.

Correlation was found only with rest HR ($r = 0.85$, $p < 0.05$) and with diabetes and hypertriglyceridemia ($r = 0.89$, 0.81 , $p < 0.01$, & < 0.01 respectively).

Conclusions – Assessment of abdominal obesity by waist circumference in patients with chronic IHD provides no complementary value to most of the exercise indices which are related to prognosis in patients with CAD.

Elevated White Blood Cell Count Before Coronary Angiography is Associated with Poor Outcome after Coronary Artery Bypass Surgery

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Background: Previous studies demonstrated that elevated White Blood Cell (WBC) count is associated with higher morbidity and mortality following coronary artery bypass surgery (CABG). It has not been established if elevated WBC count prior to coronary angiography influences outcome of patients undergoing CABG.

Methods: Preoperative data of 401 consecutive patients that underwent coronary angiography and referred to surgery in our institution were prospectively collected. WBC count was analyzed before cardiac catheterization. Patients were followed-up intraoperatively and postoperatively during hospitalization for surgery. Elevated white blood cell count was defined as higher than $14 \times 10^3/\text{mm}^3$. Prolonged ICU stay was defined as longer than 72 hours and prolonged hospital length of stay was defined as longer than 10 days.

Results: Patients with elevated WBC count prior to coronary angiography had an increased mortality rate (17% vs. 3%, $p=0.003$), prolonged ICU stay (22% vs. 6%, $p=0.01$) as well as prolonged hospital length of stay (13% vs. 3%, $p=0.04$). Patients with elevated WBC count that were operated within 24 hours from coronary angiography had a significantly higher mortality rate (28% vs. 4%, $p<0.001$) even when adjusted to other confounding factors.

Conclusions: Elevated WBC count before coronary angiography is an important marker of poor outcome for coronary artery bypass operations, especially if surgery was performed within 24 hours from angiography. If possible, surgery should be delayed for more than 24 hours or until a decrease in the white blood cell count.

Endoscopic Versus Open Vein Harvesting for Coronary Artery Bypass Grafting

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OBJECTIVE: Conventional open saphenous vein harvesting (OVH) with long operative incision can be associated with significant wound pain and serious morbidity in some patients with a resultant extended treatment period. Endoscopic vein harvesting (EVH) with one or two small 3 cm incisions, in theory should alleviate wound pain, reduced leg wound infection and lead to greater patient satisfaction. This study aims to compare the two techniques on this basis and determine whether EVH is a viable technique within normal operative time. Also we sought to compare infection complications of greater saphenous veins removed during coronary artery bypass grafting with the endoscopic vein harvesting vs. open vein harvesting techniques.

METHODS: During 2001 – 2006 years, 2576 patients undergoing coronary artery bypass grafting. From these patients 578 underwent endoscopic vein harvesting. All performed by three surgeons with the Clearglide endoscopic vein harvest system (CardioVaition Johnson and Johnson Inc). End points were impaired wound healing and postoperative pain. Follow-up was scheduled at 1 month. Leg wound healing was evaluated at discharge and 1 month late for evidence of complications.

RESULTS: The groups were well matched. Leg wound complications were significantly lower in the endoscopic vein harvest group (2.3% vs. 8.1%). Patients in the EVH group had lower postoperative pain. On multivariable analysis, endoscopic vein harvesting associated with lower leg wound complications. The new procedure did not prolong the overall operative time.

CONCLUSION: These data clearly demonstrate that endoscopic vein harvest results in significantly reduced post-operative pain, better impaired wound healing, allows earlier ambulation and does not prolong the operative time significantly with no compromise in vein quality.