Coronary Artery Ectasia and Severe atherosclerosis relationship with Inflammatory Markers

Thesis submitted for partial fulfillment of Master degree in Cardiology

By

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Introduction:

Coronary artery ectasia is a well-recognized pathological finding. Ectasia (dilated coronopathy) is a relatively rare abnormality of the coronary arterial tree that is considered to be congenital (in 20%–30% of the cases) or acquired.

Acquired coronary ectasias have been attributed most commonly to atherosclerosis (80%) and less commonly to inflammatory and connective tissue diseases. Pathologic studies reveal ectatic arterial enlargement, degeneration of the elastic lamina, medial atherosclerotic plaque formation or calcification, and thinning of the arterial wall (*Swanton et al 1978*).

The cause of ectasia is still a subject of discussion. The clinical significance of coronary ectasia is not clear. It has been suggested that the presence of ectasia alone is as important as coronary artery stenosis (*Laheri et al 2003*) .

The incidence of ectasia in the literature varies between 1.4-6%. It is further calssified into " mixed ectasia" (ectasia in association with obstructive atherosclerotic disease) and "pure ectasia" with no associated stenotic lesions.

The common features of affected individuals were middle-aged males who were smokers & obese.

Coronary ectasia is more prevalent in patients with FH than in other patients with coronary atherosclerosis and shows a strong inverse association with HDL cholesterol levels. This suggests that disordered lipoprotein metabolism in FH may predispose patients to aneurysmal coronary artery disease (*Sudhir et al 1995*)

C-reactive protein is a relatively well established risk predictor for cardiovascular disease.Interleukin-6 is a central stimulus for acute phase response and is the primary determinant of the hepatic production of CRP(*Haddy et al 2003*)Elevated levels of circulating IL-6 have been found in CAD (*Brevetti et al 2003*) and MI patients.

Aim of the work:

To test the theory of inflammation as the main cause of ectasia as determined by the rise in inflammatory markers in comparison to atherosclerotic coronary artery disease.

Patients:

The study population will consist of individuals who had been referred to Ain Shams University Hospitals for coronary angiography because of chest pain or non invasive test compatible with myocardial ischemia.

Patients will be categorized according to there angiographic finding into age ,sex & body surface area matched groups :

- **Group I:** Subjects with angiographically normal coronaries.

- **Group II:** Subjects with coronary atherosclerosis (atherometous plaques or greater than 50% stenosis in two or more coronary arteries).

- **Group III:** Subjects with coronary ectasia(segmental or diffuse luminal dilatation of one of more coronary arteries to be more than 1.5 fold of the adjacent normal segment).

***Exclusion criteria:

- Patients with acute coronary syndrome.

- Patient with acute inflammation, that might cause a rise in inflammatory mediators.

- Patients with recent myocardial infarction in the past month or non ischemic cardiomyopathy.

Methods:

All patients will undergo:

1- Thorough history taking.

2- Full medical examination.

3- Diagnostic coronary angiography .

4- Serum samples of all patients will be tested for :

- High-sensitive C-reactive protein(hsCRP) levels.

- Serum IL-6 concentrations by ELISA method.

The results will be plotted into tables & statistically studied.

References:

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4. **Brevetti G**, Piscione F, Silvestro A, Galasso G, Di Donato A, Oliva G, et al. Increased inflammatory status and higher prevalence of three-vessel coronary artery disease in patients with concomitant coronary and peripheral atherosclerosis. Thromb Haemost 2003;89:1058-63.

بسم الله الرحمن الرحيم

﴿ وقل اعملوا فسيرى الله عملكم و رسوله و المؤمنون ﴾

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A-II	Angiotensin II
CABG	Coronary artery bypass graft
CAD	Coronary artery disease
CAE	Coronary artery ectasia
CRP	C-reactive protein
EDRF	Endothelial derived relaxing factor
EEM	External elastic membrane
Hs-CRP	High sensitive CRP
IL-6	Interleukin
I-CAM	Intercellular adhesion molecule
IVUS	Intravascular ultrasound
LAD	Left anterior descending artery
LCX	Left circumflex artery
LM	Left main artery
LOX-1	Lectin like oxidized LDL receptor-1
MMP	Matrix metalloproteinase

mRNA	Messenger Ribo Nucleic Acid
NO	Nitrous oxide
PAI	Plasminogen activator inhibitor
RCA	Right coronary artery
SMC	Smooth muscle cell
TFC	TIMI frame count
TIMP	Tissue inhibitor of metalloproteinase
V-CAM	Vascular cellular adhesion molecule

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Aim of the work :

To test the hypothesis that Coronary artery ectasia is a form of severe atherosclerosis by measuring highsensitivity CRP (hsCRP) and Interleukin-6 (IL-6) in three groups.

- Patients with isolated coronary artery ectasia

- Patients with obstructive coronary artery disease without ectasia

- Subjects with angiographically normal coronaries