



Egyptian Society of
CARDIOLOGY

Mansoura University Suez Canal University Zagazig University

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**Erectile Dysfunction Severity as a
Predictor of Left Main and/or Three-
Vessel Disease in Acute Coronary
Syndrome Patients**

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Team work:

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Coronary artery disease is a paramount causative of morbidity and death all around the world. In patients with NSTEMI ACS, the presence of left main and/or three-vessel disease (LM/3VD) carries higher risk of CV events.

Early invasive strategy improves outcome in these patients. So, early searching of such patients is beneficial.

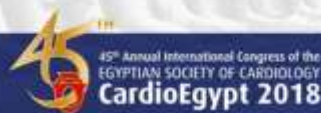
Erectile dysfunction (ED) is defined as the inability to achieve and/or to maintain erection that is for necessary for satisfactory sexual intercourse.

The pathophysiological mechanism and risk factors of developing ED are quite similar to those of CAD with endothelial dysfunction as the major component affecting different vascular beds of various diameters.



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The relation between ED and CV diseases was previously noticed. ED was found to be associated with subclinical LV dysfunction, increased incidence of asymptomatic CAD, increased risk for CAD morbidity and mortality, and the severity of erectile dysfunction was found to be correlated with angiographic extent of CAD.



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The aim of our work was to find out if the severity of ED can predict the presence of LM/3VD in ACS patients.



Our study was included 85 male patients with NSTEMI ACS who were admitted to our CCU.

Patients were excluded from our study if they had previous MI, revascularization, contraindication for coronary angiography.

Also, patients with known neurologic, psychiatric or endocrine disease that may affect erectile function were excluded.

Additionally, patients who had a history of pelvic-urethral-prostatic surgery and those who were receiving treatment for ED were also excluded from the study.

Single patients were also excluded from our study.

The following tests and procedures were done all patients.



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1) Full history and clinical examination.

2) International index of erectile function (IIEF): After stabilization of the clinical condition, all patients were evaluated using the IIEF 15-item, self-administered questionnaire after translating it into Arabic.



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INTERNATIONAL INDEX OF Erectile Function (IIEF)

WORLDWIDE NUMBER OF PATIENTS: _____

NAME: _____

DATE OF BIRTH: / / AGE: _____

ADDRESS: _____

TELEPHONE: _____

Patient Questionnaire

These questions ask about the effects that your erection problems have had on your sex life (see IIEF and IIEF-5). Please try to answer the questions as honestly and as clearly as you are able. Your answers will help your doctor to choose the most effective treatment suited to your condition. In answering the questions, the following definitions apply:

- Sexual activity includes intercourse, coitus, foreplay & masturbation.
- Sexual intercourse is defined as sexual penetration of your partner.
- Sexual stimulation includes situations such as foreplay, sexual privacy, sex education (in the opinion of a partner) or the feeling of sex.
- Orgasm is the fulfillment or climax following sexual stimulation or intercourse.

Q#	Q#	Q#
Q1	Q2	Q3
Q4	Q5	Q6
Q7	Q8	Q9
Q10	Q11	Q12
Q13	Q14	Q15

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Q1 How often were you able to get an erection during sexual activity?

Q2 When you had erections with sexual stimulation, how often were your erections hard enough for penetration?

Q3 When you attempted intercourse, how often were you able to penetrate (insert) your partner?

Q4 During sexual intercourse, how often were you able to maintain your erection after you had penetrated (entered) your partner?

Q5 How often have you enjoyed sexual intercourse?

Q6 When you had sexual stimulation or intercourse, how often did you experience an orgasm?

Q7 How often have you felt sexual desire?

Q8 How satisfied have you been with your sexual life?

Q9 How satisfied have you been with your sexual relationship with your partner?

Q10 How do you rate your confidence that you could get and keep an erection?

Q11 How often have you felt sexual desire?

Q12 How often have you been with your partner?

Q13 How often have you had sex?

Q14 How often have you had sex?

Q15 How often have you had sex?

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يرجى اختيار الإجابة الأقرب لحالتك الجنسية في آخر 4 أسابيع

<p>1- لم تحدث علاقة. 2- نادراً. 3- مرات قليلة (أقل من النصف). 4- معظم المرات (أكثر من النصف). 5- تقريبا كل مرة.</p>	<p>ما هو معدل قدرتك على الانتصاب أثناء العلاقة الجنسية؟</p>
<p>1- لم تحدث علاقة. 2- نادراً. 3- مرات قليلة (أقل من النصف). 4- معظم المرات (أكثر من النصف). 5- تقريبا كل مرة.</p>	<p>هل تحصل على انتصاب كاف لإتمام العلاقة الجنسية؟</p>
<p>1- لم تحدث علاقة. 2- نادراً. 3- مرات قليلة (أقل من النصف). 4- معظم المرات (أكثر من النصف). 5- تقريبا كل مرة.</p>	<p>ما هو معدل قدرتك على إتمام العلاقة الجنسية؟</p>
<p>1- لم تحدث علاقة. 2- نادراً. 3- مرات قليلة (أقل من النصف). 4- معظم المرات (أكثر من النصف). 5- تقريبا كل مرة.</p>	<p>هل تستطيع الحفاظ على الانتصاب طوال مدة العلاقة الجنسية؟</p>

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According to the results of IIEF questionnaire, patients were divided into two groups:

Group 1: patients with mild or no ED (IIEF score ≥ 17). This group included 47 patients.

Group 2: patients with moderate or severe ED (IIEF score < 17). This group included 38 patients.



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3) Coronary Angiography: was done to all patients. The coronary artery system was visually estimated by an expert angiographer who was unaware of patients' clinical data.

Lesions with $\geq 70\%$ narrowing in major epicardial artery or $\geq 50\%$ narrowing in the left main coronary artery were considered significant stenosis.

coronary arteries.



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Gensini score was calculated for estimating angiographic severity.

Three-vessel disease was present if there were significant obstructive CAD in all 3 major epicardial coronary arteries, namely left anterior descending, left circumflex and right coronary arteries.



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RESULTS



Table 1: Demographic data and risk factors.

	IIEF score \geq 17 (n = 47)	IIEF score < 17 (n = 38)	P
Age (years)	47.5 \pm 9.84	50.3 \pm 10.21	0.205
Hypertension	18 (38.3 %)	16 (42.1 %)	0.722
Diabetes	13 (27.6 %)	14 (36.8 %)	0.366
Smoking	15 (34.1 %)	12 (31.6 %)	0.974
Total Cholesterol (mg/dl)	195.2 \pm 41.5	198.4 \pm 39.7	0.718
LDL (mg/dl)	112.4 \pm 28.7	117.3 \pm 26.2	0.414
HDL (mg/dl)	40.1 \pm 9.41	38.7 \pm 8.57	0.476
Triglyceride (mg/dl)	153.4 \pm 37.5	161.2 \pm 36.2	0.334

Data are expressed as mean \pm SD or number (%). LDL = low density lipoprotein, HDL = high density lipoprotein.



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Table 2: Chronic drugs.

	IIEF score \geq 17 (n = 47)	IIEF score < 17 (n = 38)	P
Beta blockers	6 (12.8 %)	5 (13.1 %)	0.957
Diuretics	3 (6.4 %)	3 (7.9 %)	0.787
ACEIs	8 (17 %)	7 (18.4 %)	0.866
ARBs	2 (4.2 %)	3 (7.9 %)	0.478
Calcium channel blockers	9 (19.1 %)	7 (18.4 %)	0.827
Nitrates	6 (12.8 %)	7 (18.4 %)	0.471
Statins	12 (25.5 %)	10 (26.3 %)	0.935
Aspirin	11 (23.4 %)	10 (26.3 %)	0.757
Oral hypoglycemic	8 (17 %)	8 (21 %)	0.636
Insulin	5 (10.6 %)	6 (15.8 %)	0.482

Data are expressed as number (%). ACEIs = Angiotensin converting enzyme inhibitors. ARBs = Angiotensin receptor blockers.



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Table 3: Coronary angiography.

	IIEF score ≥ 17 (n = 47)	IIEF score < 17 (n = 38)	p
Diseased vessel			
- LMCA	2 (4.3 %)	7 (18.4 %)	0.035
- LAD	35 (74.4 %)	31 (81.6 %)	0.434
- LCX	27 (57.4 %)	27 (71.1 %)	0.195
- RCA	20 (42.6 %)	22 (57.9 %)	0.159
Number of diseased vessels			
- Single vessel	20 (42.6 %)	11 (28.9 %)	0.195
- Two vessels	19 (40.4 %)	12 (31.6 %)	0.399
- Three vessels	8 (17 %)	15 (39.5 %)	0.021
LM/3VD	10 (21.3 %)	21 (55.3 %)	0.0012
Gensini score	23.5 \pm 10.8	34.1 \pm 12.7	0.0001

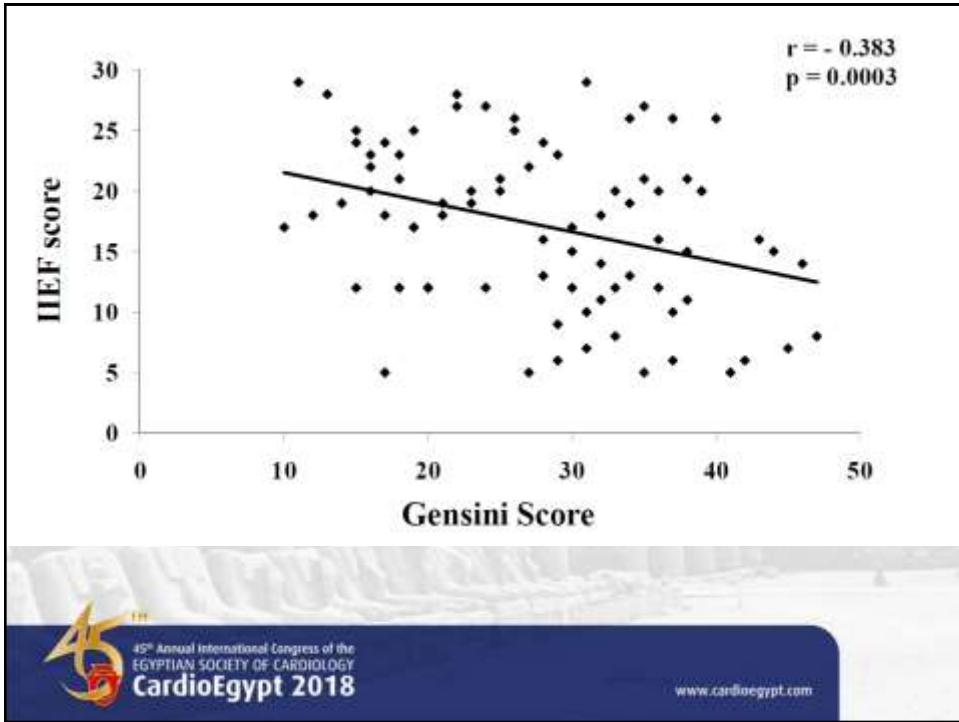
Data are expressed as mean \pm SD or number (%). LMCA = left main coronary artery, LAD = left anterior descending, LCX = left circumflex, RCA = right coronary artery. LM/3VD = Left main or three vessel disease.

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Table 4: Logistic regression analysis for predictors of LM/3VD.

Variables	Odds ratio	95 % CI	p
Age	4.15	3.61 – 4.69	0.00024
Heart rate	3.87	3.11 – 4.63	0.00013
IIEF score < 17	3.21	2.84 – 3.58	0.0057
Killip class > 1	2.87	2.03 – 3.71	0.011
ST-depression, or ST-elevation in aVR ≥ 1 mV	2.53	1.83 – 3.23	0.027

CI = Confidence Interval. IIEF: International index of erectile function.

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The presence of moderate or severe ED in men with ACS is associated with more extensive CAD manifested by higher Gensini score and more incidence of LM/3VD.

In men with ACS, IIEF score < 17 was a significant and independent predictor for the presence of LM/3VD.



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