

Sexual Life and Sexual Frigidity Among Women Developing Acute Myocardial Infarction

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The various aspects of the sexual life of 100 female patients aged 40–60 with acute myocardial infarction were compared with those of a control group of 100 female patients of the same age, hospitalized for other diseases. Sexual frigidity and dissatisfaction were found among 65% of the coronary patients as compared with 24% of the controls. The commonest cause for sexual dissatisfaction was premature ejaculation or impotence in the husband. The incidence of premarital sexual relations was greater among the frigid patients when compared with those who achieved orgasm. The coronary patients had an earlier menopausal age than the controls. The number of coronary patients who underwent artificial abortions in the past was lower than in the control group. All these findings were statistically significant at a level of $P < 0.05$. No connection was found between extramarital relations and sexual frigidity. There was no relation found between sexual frigidity and diabetes, essential hypertension, marital status, pathological gynecological findings, or localization of the infarction. Until now, sexual frigidity and dissatisfaction appear to have been a neglected aspect in the female coronary patient.

INTRODUCTION

Although various psychosomatic aspects of the coronary prone patient have been widely discussed during the last years in the world literature, and a behavioral pattern Type A has been coined by Friedman and Rosenman (1–3), it is astonishing to find the paucity of studies performed on women only. A possible explanation for this is the relatively low incidence of myocardial infarction (MI) among women as compared with men (4, 5). In the few studies carried out on women in which the psychosomatic or

psychosocial aspects of coronary prone women were discussed (2, 5, 6), none played particular attention to the sexual life of these patients.

In previous studies in which we stressed the importance of emotional stress preceding MI in women (7), we were impressed by the high incidence of sexual frigidity and sexual dissatisfaction among these women compared with a control group. We consequently set out to study the various aspects of the sexual life of women hospitalized for an acute attack of MI compared with age-matched controls without MI.

METHOD

One-hundred female patients aged 40–60 admitted consecutively during the years 1972–1975 to the University Department of Medicine B of the Ichilov Medical Center, Tel-Aviv, for a first acute myocardial infarction were included in this study. The diagnosis of MI was established according to the criteria of the Minnesota Code (8), accompanied by a transient rise

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M.I., SEXUAL LIFE AND SEXUAL FRIGIDITY

of CPK and SGOT as described by us elsewhere (9). Diabetes was diagnosed on the basis of accepted criteria (10). Hypertension was defined when the blood pressure measured in the supine condition was found on at least four examinations to be higher than 160/95. These criteria are accepted by others (2) and are used by us elsewhere (11). Data concerning preexistent hypertension were obtained from the attending physicians.

The control group consisted of 100 female patients suffering from various diseases without any clinical anamnestic or electrocardiographic evidence of coronary heart disease. The technique of matching the control patients was as follows: After a case of MI was hospitalized in the ward and included in the study, the next admitted patient of the same age (± 1 year, but not younger than 40 or older than 60) and suffering from any other diseases was used as a control.

Patients who died during the hospitalization or patients who were unable to communicate clearly enough for the data to be valid were excluded from the study. In such a case the next patient of the same age was enlisted in the study. The control group included 18 patients with hypertension, 5 with inactive valvular heart disease, 10 with pyrexia of unknown origin, 13 with respiratory diseases, 10 with diseases of the urinary tract, 12 diabetics, 18 with gastrointestinal diseases, and 14 with other diseases (joints, blood, allergic reactions, etc.).

All the patients were interviewed before leaving hospital under conditions permitting complete

privacy. Before the interview the purpose was explained to the patient and secrecy was promised. Detailed answers were obtained to a printed questionnaire, which contained 57 questions encompassing various aspects of the patient's sexual life from her adolescence up to the time of admission.

The statistical analyses were performed by two consultant statisticians (Mr. and Mrs. C. Roseman) using Student's t test for significance of difference between mean values, while the hypothesis of difference in frequencies between groups was tested by means of binomial distribution with a normal approximation (12) and χ^2 test for Contingency Tables (13). The differences were considered statistically significant at $P < 0.05$.

RESULTS

Table 1 presents a summary of findings in all patients.

Marital Status of the Patients

In spite of the assumption that the number of single females among patients with MI is higher than those found in a control group (2), we found no statistically significant difference among the two groups ($P > 0.70$). In fact, Scandinavian authors have shown that MI is more often found among married than among single women (5, 14).

Age of Menopause

Eighty-three percent of the MI patients were in menopause on the date of admission compared with 71% of the controls (Table 2). More important is the early menopause found among patients with MI compared with women in a control group (5, 15). Oliver (16) found that 20 out of 100 women with coronary heart disease who were aged 23-44 were postmenopausal before the development of ischemic heart disease. Others have found no association between early menopause (spontaneous or

TABLE 1. Summary of Findings in All 200 Patients

	MI	Controls
No. of subjects	100	100
Average age (years)	55	53.8
No. of patients aged 40-49	16	17
No. of patients aged 50-60	84	83
Married	74	77
Divorced	9	9
Widows	15	13
Spinsters	2	1
Examined gynecologically	81	89
No gynecological pathology	71	75
Myoma found	10	6
Hysterectomy in the past	4	14
Pregnant in the past	91	97
Hypertensive	51	33
Diabetics	16	12
In menopause	83	71

TABLE 2. Menopausal Age of Patients

Age groups	All patients		MI		Controls	
	Number	%	Number	%	Number	%
All patients	154	100	81	100	73	100
Up to age 39	15	9.7	11	13.2	4	5.6
40-44	34	22.0	22	26.5	12	16.9
45-49	49	31.8	23	27.7	26	36.6
50+	56	36.4	27	32.6	29	40.9

$G = 5.176$; $df = 1$; $P < 0.05$; $\chi^2 = 3.841$.

post gynecological operations) and an increased risk of MI (17-19). Our study shows that patients with MI have a statistically significant earlier menopausal age than the controls (Student's t -test, $0.01 < P$ value < 0.02). These findings were not related to previous oophorectomies or hysterectomies because the number of patients who underwent hysterectomy was much higher among the controls (-14 compared with -4 for MI patients). Furthermore, none of the 200 patients had undergone a bilateral oophorectomy.

Artificial Abortions

Very few studies have been performed regarding the frequency of abortions (natural and artificial) among patients with MI, especially comparing them with a control group. Winkelstein et al. (20) have found a higher incidence of abortion among coronary patients than among controls. The same findings were found by Bengtsson (5). Our findings show that the number of patients with MI who underwent artificial abortion was significantly lower than the controls (Table 3).

High Blood Pressure

Our figures confirm the well-known fact that hypertension is much commoner

among patients with MI than among controls (2, 21). Fifty-one MI patients and 33 controls suffered from high blood pressure ($P < 0.01$).

Extramarital and Premarital Sexual Relations

Forty-three of the 200 patients confessed to having had extramarital relations. This number is smaller than the one mentioned by Kinsey et al. (22). We found no significant differences among the two groups ($P > 0.20$). Forty-four of the patients (22 MI and 22 controls) confirmed having premarital relations (at least 1 year before marriage).

Sexual Frigidity and Lack of Satisfaction

We have adapted the definition of frigidity from Rosen (23), "frigidity is a partial or complete inability of the female to be aroused sexually or to achieve orgasm," which does not differ from Khan's definition (24). In our investigation we have classified women as frigid, or as not having achieved orgasm, as those who (1) have never enjoyed sexual intercourse, (2) have enjoyed coitus but have failed to attain orgasm, which leaves them frustrated, disappointed, and emotionally unsat-

TABLE 3. Number of Patients who Underwent Artificial Abortion

Age groups	All patients		MI		Controls	
	Number	%	Number	%	Number	%
All patients	200	100	100	100	100	100
Performed abortion	108	54	46	46	62	62
No abortion performed	92	46	54	54	38	38

G = 5.176; *df* = 1; *P* < 0.05; χ^2 = 3.841.

TABLE 4. Incidence of Sexual Frigidity in the Two Groups

Age groups	All patients		MI		Controls	
	Number	%	Number	%	Number	%
All patients	200	100	100	100	100	100
Frigid patients	89	44.5	65	65	24	24
Nonfrigid patients	111	55.5	35	35	76	76

G = 35.13; *df* = 1; *P* < 0.001; χ^2 .95 = 3.841.

isfied, or (3) have enjoyed coitus and attained orgasm in the past but lately have failed in these or ceased having intercourse because of husband's illness or impotence, which gives them a feeling of resentment, frustration, hostility, and emotional dissatisfaction.

On the other hand, we included in the other group women who enjoy coitus and achieve orgasm or women who enjoyed coitus and achieved orgasm in the past but presently do not have sexual intercourse, but this does not cause them any feeling of discomfort, stress, frustration, or disappointment.

There are various opinions about the incidence of frigidity among women. According to Caprio (25), approximately seven million American women find sex physically distasteful or unsatisfactory. Others state that the percentage of women who never or rarely have orgasm lies between 25% and 40% (24).

Our findings show a significantly higher incidence of sexual frigidity among

females with MI as compared with controls (Table 4).

We found no statistically significant differences between the age at menopause and frigidity for either groups of patients (*P* > 0.10), or could we find any difference in the number of females who had artificial abortions and its relation to frigid or nonfrigid women in both groups (*P* > 0.10).

Gynecological Pathology, Hypertension, Diabetes, and Sexual Frigidity

Gynecological pathology can sometimes cause dyspareunia, which leads to frigidity (24). Eighty-one of the MI patients and 89 of the controls underwent a gynecological examination. We found no statistically significant difference between the pathology found among MI and control patients (*P* > 0.5), or did we find any connection between the incidence of gynecological pathology and frigidity, both among the MI patients (*P* > 0.10) or the controls (*P* > 0.70).

Systemic diseases may lead to frigidity (24). We have found no reliable report about the relation between hypertension and frigidity. A more complicated problem is that of diabetes, which can definitely cause impotence in the male. We found no relation between hypertension and frigidity ($P > 0.5$) or between diabetes and frigidity ($P > 0.10$) in this study. Marital status had no influence on the incidence of frigidity ($P > 0.05$).

Etiology of Sexual Frigidity and Dissatisfaction

One of the commonest causes of frigidity and lack of sexual gratification is premature ejaculation or impotence of the husband (Table 5). Most authors call this state pseudofrigidity (24, 26) but include it under the common denominator of frigidity. Abse et al. (27) quote Kinsey as stating that 75% of males reached coital orgasm in less than 2 min, while the same proportion of females had not achieved orgasm until beyond 5 min, and 12% required beyond 10 min coital stimulation for orgasm.

Among the 89 patients who were considered to be sexually frigid or had not achieved sexual gratification (65 MI and 24 controls), 40 stated that the cause of it was either impotence or premature ejaculation of the husband, 15 attributed it to husband's disease or death, and 8 to

disease of the patient herself. Twenty-six of the frigid patients could give no satisfactory explanation. We have looked for a possible statistically significant difference between the above mentioned causes as occurring among MI patients and the controls (having excluded those patients who could not determine any cause) and found no differences between the two groups.

We determined how long the frigidity existed prior to the infarction. In most cases (50 of the 65 MI patients and 20 of the 24 controls) the duration of the frigidity was long standing, lasting for many years.

The remaining subjects thought that the frigidity developed 1-3 years prior to the infarction. Almost all of them attributed it to the husband's disease or death or to the patient's own illness.

Extramarital and Premarital Relations and Sexual Frigidity

A common belief is that extramarital relations are more common among frigid and sexually dissatisfied women (25). We found no such correlation, either among patients with MI ($P > 0.10$) or among controls ($P > 0.05$). On the other hand, our findings point to the fact that the number of MI patients who were frigid and had premarital relations was significantly higher than the MI patients who were sexually satisfied ($0.01 < P < 0.02$); such a correlation was not found in the control group ($0.10 < P < 0.20$).

TABLE 5. Causes of Sexual Frigidity and Dissatisfaction

Causes	All patients	Impotence or premature ejaculation	Disease or death of husband	Disease of patient	Unknown
All frigid patients	89	40	15	8	26
MI	65	30	10	5	20
Control	24	10	5	3	6

$$G = 0.7147 < \chi^2 = 5.991; df = 2.$$

Localization of Infarct and Sexual Frigidity

The incidence of anterior wall infarction is higher than diaphragmatic wall infarction among the general population—a well known fact reported by us in the past (28) as well as by others (5). Our present report confirms this, but we failed to show any relation between the localization of the infarction and frigidity ($P > 0.70$).

DISCUSSION

A merely somatically oriented approach to patients with MI, repeating the already known somatic risk factors, may actually disregard some of the most important aspects of the physician's treatment. Such an approach must be regarded as at least incomplete and can often lead to unjustified and even dangerous conclusions.

A combined approach encompassing physical, physiological, psychological, and social aspects seems mandatory today. According to Dreyfuss (29), psychological determinants seem to play a major role in the vulnerability and proneness of individuals to develop this disease. Certain personality characteristics or traits and behavior patterns allow these individuals to fall victim to certain stimuli or to conflicting situations.

The links between psychosocial factors, emotional stress, and MI have been further strengthened by the studies of Russek (30), Jenkins (31), and Rosenman and Friedman (1, 2, 32). These authors have found in retrospective and recently in prospective studies (33) the relationship and proneness of individuals belonging to behavior pattern A to develop manifested coronary artery disease. In their single work evaluating this association among women, Rosenman and Friedman found

that women exhibiting pattern A had a fourfold higher incidence of clinical coronary disease, resembling closely men with a similar behavior pattern (2). Interestingly, none of the aforementioned authors has ever tried to evaluate aspects of the sexual life of the coronary woman.

Is it possible to bridge the already known psychosocial and emotional factors of women with MI to sexual frigidity?

Previous studies have stressed the association between depression and coronary disease among men (34, 35). We have reported the high incidence of depression among women with MI (7). Wolf has described an association between MI and lack of satisfaction and happiness and the job performed, prolonged frustration, and inability to relax (36), an aspect later reaffirmed by Liljefors and Rahe (37), who studied the psychosocial factors in coronary heart disease among identical twins in Sweden. On the other hand, sexual frigidity and dissatisfaction in women have been often associated with depression (7, 25).

A hypothetical difficulty in studies of this kind is the reliability of the patients interviewed. Various authors have pointed out that almost all the patients interviewed gave full and sincere answers even when the questionnaires and interviews dealt with aspects of sexual life in the elderly (38–40). Our impression is that data obtained in face-to-face interviews have been reliable.

The findings of this study indicate that there is a marked prevalence of sexual frigidity and dissatisfaction among women with MI. This would appear to be an ignored but important aspect of the coronary profile in the female.

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REFERENCES

1. Friedman M, Rosenman R: Association of specific overt behavior pattern with blood and cardiovascular findings. *JAMA* 169:1286-1296, 1959
2. Rosenman R, Friedman M: Association of specific behavior pattern in women with blood and cardiovascular findings. *Circulation* 24:1173-1184, 1961.
3. Rosenman R, Friedman M, Straus R, Jenkins C, Zyzanski S, Wurm M: Coronary heart disease in the western collaborative group study. *J Chron Dis* 23:173-190, 1970
4. Abramov LA, Kalner G: Dicumarol and myocardial infarction. *Harefuah* 44:1-5, 1953
5. Bengtsson C: Ischemic heart disease in women. *Acta Med Scand (Suppl)* 549:1-128, 1973
6. Finn F, Hickey N, O'Doherty E: The psychological profiles of male and female patients with coronary heart disease. *Ir J Med Sci* 2:339-341, 1969
7. Abramov LA, Dreyfuss F: The role of emotional stress prior to myocardial infarction in women, in *Cardiovascular Regulation* (edited by A Zanchetti and C Bartorelli). Milan, Cardiovascular Research Institute, 1971, pp. 209-211
8. Blackburn H, Keys A, Simonson E, Rautaharju P, Punsar S: The electrocardiogram in population studies. *Circulation* 21:1160-1175, 1960
9. Abramov LA, Fierstater E: Creatine phosphokinase. *Harefuah* 87:232-233, 1974
10. Dreyfuss F, Abramov LA, Peritz E: A comparison of the number of pregnancies up to the age of 45 in diabetic and nondiabetic women. *Isr J Med Sci* 8:1953-1955, 1972
11. Abramov LA: Essential hypertension and breast cancer. *Lancet* 1:47, 1975
12. Brownlee K: *Statistical Methods and Methodology in Science and Engineering*. New York, John Wiley & Sons, 1965
13. Mills FC: *Statistical Methods*. New York, Henry Holt & Co., 1955, pp. 512-540
14. Westlund K: Further observations on the incidence of myocardial infarction in Oslo. *J Oslo City Hosp* 15:201-231, 1965
15. Utian W: Cholesterol, coronary heart disease and estrogens. *South Afr Med J* 45:359-361, 1971
16. Oliver M: Ischemic heart disease in young women. *Br Heart J* 27:305, 1965
17. Manchester J, Herman M, Gorlin R: Premenopausal castration and documented coronary atherosclerosis. *Am J Cardiol* 28:33-37, 1971
18. Novak E, Williams T: Autopsy comparison of cardiovascular changes in castrated and normal women. *Am J Obstet Gynecol* 80:863-872, 1960
19. Ritterband A: Gonadal function and the development of coronary heart disease. *Circulation* 27:237-251, 1963
20. Winkelstein W, Stenchever M, Lilienfeld A: Occurrence of pregnancy, abortion and artificial menopause among women with coronary artery disease. *J Chron Dis* 7:273-286, 1958
21. Zondek SG, Abramov LA: Diabetes and myocardial infarction. *Harefuah* 50:1-4, 1956
22. Kinsey A, Pomeroy WB, Martin CE, Gebbard PH: *Sexual Behavior in the Human Female*. Philadelphia, W.B. Saunders & Co., 1953, pp. 423, 842
23. Rosen E, Fox R, Gregory I: *Abnormal Psychology*. Philadelphia, W.B. Saunders & Co., 1972, p. 180
24. Kahn N, Solomon P: Normal and abnormal sexual behavior, in *Psychiatry* (edited by P Solomon and V Patch). Los Altos, Calif., Lange Medical Publications, 1971, pp. 271-275
25. Caprio F: *The Sexually Adequate Female*. New York, The Citadel Press, 1967, p. 25
26. Reif A: Die Bedeutung der Frigidität in der frauenärztlichen Sprechstunde. *Acta Psychother Psychosom* 4:163-170, 1956
27. Abse D, Nash E, Lounden L: *Marital and Sexual Counseling in Medical Practice*. Maryland, Harper & Row, 1974, p. 56
28. Abramov LA: Medical thesis, Hebrew University Medical School, Jerusalem, 1952

M.I., SEXUAL LIFE AND SEXUAL FRIGIDITY

29. Dreyfuss F: Psychological and somatic factors in coronary heart disease, in *Neural and Psychological Mechanisms in Cardiovascular Disease* (edited by A Zanchetti). Milan, Il Ponte, 1972, pp. 109-117
30. Russek H: Emotional stress and coronary heart disease in American physicians, dentists and lawyers. *Am J Med Sci* 243:716-725, 1962
31. Jenkins CD: Psychologic and social precursors of coronary disease. *N Engl J Med* 284:244-255, 1971, 284:307-317, 1971
32. Friedman M, Rosenman R, Straus R: A predictive coronary heart disease. *JAMA* 189:15-22, 1964
33. Jenkins C, Rosenman R, Zyzanski S: Prediction of clinical coronary heart disease by a test for the coronary prone behavior pattern. *N Engl J Med* 290:1271-1275, 1974
34. Dreyfuss F, Shanin J, Sharon M: Some personality characteristics of middle-aged men with coronary artery disease. *Psychother Psychosom* 14:1-16, 1966
35. Tibbling G: *Physiology, Emotion and Psychosomatic Illness*. Holland, Elsevier, Ciba Foundation Symposium, 1972, p. 327
36. Wolf S: Psychosocial forces in myocardial infarction and sudden death. *Circulation* 40:74-83, Suppl 4, 1969
37. Liljefors T, Rahe R: An identical twin study of psychosocial factors in coronary heart disease in Sweden. *Psychosom Med* 32:523-542, 1970
38. Pearson H, Joseph J: Stress and occlusive coronary artery disease. *Lancet* 1:415-418, 1963
39. Newman G, Nichols C: Sexual activities and attitudes in older persons. *JAMA* 173:33-35, 1960
40. Pfeiffer E, Verwoerd A, Want H: Sexual behavior in aged men and women. *Arch Gen Psychiatry* 19:753-758, 1968