

Study of Some Psychological Factors in Relation to Malignancies

R. Abdel Latif, A.M. Khashba, M. M. El-Maghraby, A.,
A. and M. E.Sahlol

This study was done on 30 patients with malignancies attending the Oncology unit in Zagazig University Hospital. 20 healthy control subjects were selected from the employees in Z.U.H. Middlesex Hospital Questionnaire was used in psychological assessment, in addition to clinical psychiatric assessment. The results revealed preponderance of the trait of extraversion in these patients. Also, past history of childhood and / or adolescence trauma revealed frequent incidence of only single event, that is parental death, past history of psychiatric disorders was not conclusive, yet past history of depression was more frequent than other disorders. Patients scored pathological levels on depression, anxiety and somatic scales of M.H.Q., that is significantly different from control. Moreover, M.H.Q. proved an increase of obsession to a pathological level in these patients, that is not significantly different from controls.

(Egypt.J. Psychiat.,1994,17: 77 - 86).

Introduction

A voluminous literature reveals clinical observations, case descriptions, and experimental data asserting that there is a link between psychological factors and the development of malignancy. (Greenberg and Dattore, 1981). The question of a cancer-prone personality has been extensively researched. In recent years, there has been increasing interest in exploring the relationship between early childhood experiences and subsequent development of cancer. Some evidence suggests a negative correlation

between cancer and schizophrenia (Levi and Waxman, 1975). In contrast, most attention has been paid to the development of postdepression malignancy, and a relationship between cancer and

depression was described (Kerr et al., 1969) that was not supported by other studies (Evans et al., 1974). It appears that in extensive network of CNS, neurotransmitters, endocrines, other biological processes are involved in the mediation of the effect of psychosocial influences on immune function, the processes involved seem to be highly complex (Stien et al., 1980).

The aim of this work is to study the possible psychosocial factors in relation to malignancies, factors in consideration are the demographic characteristics, the personality profile, the childhood psychological trauma, and history of psychiatric disorders.

Subjects and Method

1) About 30 patients were selected randomly. All of them were finally diagnosed through a careful clinical, pathological examination and they were under treatment with the appropriate chemotherapeutic agent.

R. El-Latif, A. M., Khashba, M., M.,
El-Maghraby, A. A. Ahmed, M. E. Sahlol
Psychiatry Department, Faculty of
Medicine, Zagazig University.

2) About 20 control subjects were selected from the employees in Zagazig University Hospital (e.g. Doctors, nurses, skilled labourers, unskilled labourers). All reported no history of mental illness or major medical disorder and were at the time of examination in a state of good health. (good health is defined here as freedom of malignant or benign neoplasms and from such major medical disorders as coronary heart disease, hypertension, DM, bronchial asthma, peptic ulcer, arthritis) (Duszynski et al., 1981).

3) The patients were subjected to the following:-

Thorough history taking with special stress on:

- 1) Personal data
 - 2) History of present illness
 - 3) Past history of medical disease
- * Thorough medical examinations
- * Psychiatric assessment with special interest in:
- Past history of childhood psychological trauma.

- Personality traits
- Past history of psychiatric disorder
- * Psychometric assessment of personality:

Middlesex Hospital Questionnaire (M.H.Q) (Gawad et al., 1972).

Results

Characterisation of the sample of patients:

Anxiety Scale

16.6% patients scored more than 12 indicating severe degree of anxiety. Also, 33.40% of patients showed pathological scores between 8 and 12. The mean score was 8.67 ± 4.32 for the total sample of patients and 6.33 ± 3.72 for control subjects. the difference between the two means was statistically significant ($P < 0.01$).

Phobia Scale

33.40 of patients scored more than 12 indicating severe degree of phobia. Also, 6.60% of patient showed pathological scores between 8 and 12. The mean score was 7.02 ± 2.36 for patients and 6.13 ± 3.61 for control subjects.

Table 1
Diagnostic Categories

Diagnostic category	Frequency	% (in total sample)
- Leukemias	12	40
. Acute leukemia	8	26.7
. Chronic leukemia	4	13.3
lymphocytic type	18	
- Lymphomas		60
. Hodgkin Disease	4	13.3
. N. H. L.	14	46.7
- Number of patients	30	100

From this table it is observed that leukemias were less common than lymphomas (40% , 60% respectively). However, leukemias were common than H. D. (13.3%).

Table 2
Age Distribution

	10 - 15	16 - 25	26 - 35	36 - 45	Total	Mean Age (years)
Leukemias	3	3	3	3	12	
. Acute L.	3	3	2	0	8	30.13
. Chronic L.L.	0	0	1	3	4	
- Lymphomas	2	4	6	6	18	32.20
. Hodgkin Disease.	3	1	1	0	4	30.21
. N. H. L.	0	3	5	6	14	33.11
Total	5	7	9	9	30	32.9

From this table it can be noted that acute leukemias were more frequent in age range 16 - 25. As regard C. L. L., almost all cases were in age range 36 - 45. The mean age of leukemia patients was 30.13 Also it is observed that the incidence of N. H. L. Increased steadily with age. The mean age for all lymphoma patients was 32.20.

Table 3
Sex Distribution

	Male	Female	Total	M/F ratio
Leukemias				
. Frequency	8	4	12	2:1
. %	66.70	33.30	100	
- Lymphomas				
- H. D.	3	1	4	3:1
. Frequency	75	25	100	
. %				
- N. H. D.	10	4	14	2.5:1
. Frequency	71.45	28.55	100	
. %				
Total number	21	9	30	
. %	70	30	100	3:1

From this table it is clear that male to female ratio was 2:1 for leukemia, 3:1 for H.D., 2.5:1 for NHL.

Table 4
Childhood and / or Adolescence Trauma

Trauma	Patients (n = 30)		Control (n = 20)		x 2	Significance
	No. of positive	%	No. of positive	%		
- Parental Death or Deaths	12	40	3	15	4.0534	Significant at 0.05 level
- Parental Divoree or separation	1	3.30	1	5	0.0362	Insignificant
Sibling Death ≤ 2 years as Youngest child	1	3.30	1	5	0.1154	Insignificant
	15	50	12	60	0.1234	Insignificant

This table is concerned with the presence of past history of childhood and / or adolescence trauma.

It can be observed that no statistically significant difference was found between the number of patients, & the number of controls except only in one type of trauma. Parental death ($P < 0.05$). Also it is clear that the most frequent trauma was being < 2 years as youngest child, occurring in 50% of patients, 60% of controls. But the difference was insignificant.

Table 5
Personality Trait

	Extraverts	Introverts	Ambiverts	Total
No.	20	6	4	30
%	66.70	20	13.30	100

This table classifies groups of patients according to their personality trait. From the table, it is observed that the trait of extraversion was predominant (66.70% of patients).

Table 6
Past history of Psychiatric Disorders

Past history of Psych disorders	No. of positive	%
(I) Psychoses		
- Schizophrenia	0	0
- Affective illness		
* Mania	0	0
* Depression	1	3.30
(II) Neuroses		
- Depression	3	10
- Other neurotic disorders	2	6.60
(III) Others	0	0

From this table, it is observed that only one patient reported past history of treatment for psychotic depression. It is also clear that 3 patients had suffered depressive reactions, another 2 patients had suffered other neurotic disorders.

Table 7
Results of M. H. Q.

	Patients (N = 30)		Control (N = 20)		t	Significance
	No.	%	No.	%		
Anxiety						
0 +	15	50	11	55	2.6541	Significant 0.01
8 +	10	33.40	7	35		
12 +	5	16.6	2	10		
Mean	8.67		6.33			
S. D.	4.32		3.72			
Phobia						
0 +	15	60	10	50	1.3207	insignificant
8 +	2	6.60	8	40		
12 +	10	33.40	2	10		
Mean	7.02		6.13			
S. D.	2.36		3.61			
Obsession						
0 +	11	36.60	10	50	1.5014	insignificant
8 +	12	40	6	30		
12 +	7	23.40	4	20		
Mean	8.92		7.54			
S. D.	2.67		3.86			
Somatic						
0 +	15	50	11	50	3.2667	Significant at 0.01 level
8 +	10	33.40	6	30		
12 +	5	16.60	3	15		
Mean	7.96		5.36			
S.D.	3.85		3.83			
Depression						
0 +	14	46.60	10	50	3.1658	Significant at 0.01 level
8 +	4	40	8	40		
12 +	12	13.40	2	10		
Mean	8.78		6.23			
S.D.	3.53		3.57			
Hysteria						
0 +	24	80	15	75	1.017	insignificant
8 +	5	16.60	4	20		
12 +	1	3.40	1	5		
Mean	4.05		4.73			
S.D.	3.03		2.45			

The difference was statistically insignificant.

Obsession Scale

23.40% of patients scored more than 12 and 40% of patients showed pathological scores between 8 and 12. The mean score was 8.92 ± 2.67 for patients and 7.54 ± 3.86 for controls. the difference was statistically insignificant.

Somatic Anxiety Scale

16.60% of patients scored more than 12 and 33.40% showed pathological scores between 8 and 12. The mean scores was 7.96 ± 3.85 for patients and 5.36 ± 3.83 for control subjects. The difference between the two means was statistically significant ($P < 0.01$).

Depression Scale

13.40% of patients scored more than 12 and 40% showed pathological scores between 8 and 12. The mean score was 8.78 ± 3.53 for patients and 6.33 ± 3.68 for control subjects. The difference between the two means was statistically significant ($P < 0.01$).

Hysteria Scale

Only 3.40% of patients scored more than 12, and 40% showed pathological scores between 8 and 12. The mean score was 4.05 ± 3.03 for patient and 4.73 ± 2.45 for controls. The difference between the two means was statistically insignificant.

Discussion

The psychosomatic study of cancer is a highly controversial topic that has evoked many opinions about whether cancer is caused or affected by psychological events. It is important to avoid simplistic notions of stress and psychological experience as the "cause" of disease but rather to view stress as having a complex interaction with the personality and biology of the host, and hence with the expression of the disease.

1- Characterization of the Patient's Sample

1. Diagnostic Categories

Wintrobe et al. (1974) reported that leukemia and lymphoma are approximately equally frequent. Similarly, acute and chronic leukemias appear to be equally frequent. Chronic lymphocytic leukemia is slightly more common than chronic myelogenous leukemia and non-Hodgkin's lymphomas are slightly more common than Hodgkin's lymphomas.

In our work, results agreed with those reported by Wintrobe et al. (1974). However, the slightly higher frequency of lymphomas than leukemia (53.3% and 46.7% of patients respectively), the

slightly lower frequency of acute leukemia than chronic leukemia and the lower frequency of H.D. than NHL can be explained by the age incidence of these diseases. The age range of our group was 15-45 years, acute leukemia is far more common in the pediatric age group, and H.D. has a bimodal age incidence with one mode above the age of 40.

2- Age Distribution

Many authors (Wintrobe et al., 1974 and DeVita et al., 1985) reported that acute lymphoblastic leukemia, is seen at age 3 to 4 years and become quite uncommon by the fourth decade while chronic lymphocytic leukemia is virtually uncommon below the age of 30. H.D. has a bimodal age incidence, one mode occurring between ages 15 and 35, and another above the age of 40. The incidence of NHL is virtually the same throughout childhood and adolescence, but rises progressively thereafter.

Our results agreed with the previous reports. The majority of acute leukemias was in the age range 15-20, patients younger than the age of 16 were not included. The incidence of H.D. tended to decrease after the age of 20.

3. Sex Distribution

It has been agreed that all neoplastic diseases of the hemopoietic system are more common in males than in females. Male to female ratios are approximately 3 : 2 for acute leukemia, 2 : 1 for CLL, 3 : 2 for H.D. and 1.4 : 1 for NHL (Wintrobe et al., 1974 and Stewart and Hess, 1987).

Sex distribution in our group was consistent with the previously mentioned reports. Leukemias, H.D. and NHL were found more common in males than in females but the figures of male-to-female ratios are slightly different in different from those reported. This can be explained by the age incidence of these diseases, and by the notion that the epi-

demology of these malignancies is different in different races and countries. This notion was maintained by many researches (DeVita et al., 1985).

II- Psychiatric Assessment

1. Childhood and / or Adolescence Trauma

In our study, no statistically significant difference was found between number of patients and number of controls having past history of childhood trauma except for only one type of trauma; parental death. 40% of our patients, in contrast to 15% only of controls, has past history of parental death. Although 50% of patients had past history of being < 2 years as youngest child, yet this was reported in 60% of control subjects.

It has been suggested from previous research that certain objectively defined traumatic events occurring in childhood and / or adolescence may be linked to the appearance of neoplasm later in life. Greene (1975) reported an interesting history of a young woman with lymphosarcoma having high frequency of childhood trauma. Cooper (1982) recorded high frequency of childhood problems in cancer patients. Although, Duszynski et al. (1981) found no statistical difference between the patients and control subjects in the frequencies of such traumatic events, they were not convinced by their results which contradicted with the earlier findings and with their own prospective findings.

Unlike many of the previous studies, our work failed to document an increased frequency of childhood traumata (except for the traumatic events of parental death). This may be explained by the notion that our patients' group differed from that of earlier studies of Greene (1975) and Cooper (1982), among others, as regards culture, socioeconomic standards and sex distribution. For example, although the traumatic event of be-

ing < 2 years as youngest child was reported in 50% of patients, it was reported in 60% of controls. The frequency of this event is expected in our culture especially in groups with low socioeconomic and educational levels. Our negative results could also be explained by the relatively small sample employed.

2. Personality traits

Our results showed that the personality trait of extraversion was predominant in our patients (66.70% were extraverts, 20% were introverts, and 13.30% were ambiverts). The notion that extraversion is associated with cancer was reported by many researchers (Coppen and Metcalfe, 1963 and Scurry and Levin, 1978). Hagnell (1966) reported an association between the trait of "substability", which seemed to overlap Eysenck's category of extraversion, and the subsequent development of cancer. Extraverts are more strongly attached to the environment and so they usually face more stresses. They also need an objective attachment, with loss of this attachment through death or separation, the person loses hope. Alternatively, the link between extraversion and susceptibility to cancer may be viewed to be due to constitutional factors related to physique and hormonal activity (Coppen and Metcalfe, 1963).

3. Past History of Psychiatric Disorders

In our work, none of the patients had a past history of schizophrenia. This finding tends to be in agreement with the reports of Levi and Waxman (1975) who suggested that there may be a reciprocal relationship between cancer and schizophrenia. However, our sample of patients is relatively very small. Anyhow, decreased incidence of cancer in schizophrenic patients may be explained by their partial or complete detachment from their environment, and by loss of object relationship and thus being not

easily disturbed by external events including loss of objective attachment.

Past history of depression (either neurotic or psychotic) was recorded in 13.3% of our patients. Many previous researches have described a relationship between depression and subsequent development of cancer (Kerr et al., 1969) that was not supported by other studies (Evans et al., 1974). In a recent prospective study, Shekelle et al. (1981) reported that psychological depression was found in 33.3% of these patients who developed malignancies of the hemopoietic and lymphatic tissue. The difference in the figures obtained in our study and that obtained by Shekelle et al. could be attributed to the different methodologies.

Anyhow, little is known as yet about the biology of both psychological depression and cancer host interaction to specify a mechanism linking the two. Psychological depression may be associated with impairment of mechanisms, cellular, hormonal or immunological, that prevent the establishment and spread of malignant cells (Shekelle et al., 1981).

III- Psychometric Assessment

Middle Sex Hospital Questionnaire (M.H.Q.)

Our patients scored significantly higher than controls on three scales of M. H. Q.; anxiety, depression and somatic scales. The mean scores on anxiety scale were 8.67 ± 4.32 for patients and 6.33 ± 3.72 for controls, on the depression scale 8.78 ± 3.3 for patients and 6.23 ± 3.57 for controls, and on the somatic scale 7.96 ± 3.85 for patients and 5.36 ± 3.83 for controls.

In an early study, Miller and Jones (1948) found apparently that 4 of 6 patients with leukemia showed anxiety, depression and chronic worry. They reasoned that the production of leukemia by physical agents occurs through hormonal changes and the emotional disorder,

also accompanied by hormonal changes, might produce blood dyscrasias in a similar fashion. Shekelle et al., (1981), using many psychometric instruments, pointed out statistically significant differences between cancer patients and controls as regards anxiety and depression.

High anxiety and depression in our patients could be interpreted in the light of emotional reaction to the malignant disease. Hersch (1985) pointed out that widespread fear that the word, much less the diagnosis, cancer generates in people is well recognized and that the psychological dimensions of cancer are strongly colored by society's fears projecting on the disease. The high scores of our patients on somatic scale are probably due to interference of the symptomatology of the malignant disorder rather than a characteristic of cancer-prone personality.

From the previous discussion of personality factors associated with malignant disease, it is evident that a major methodological difficulty with retrospective studies is that the psychological characteristics detected might result from the malignant disease rather than being a factor in the development of cancer. Another problem is that a cancer may originate many years before the tumor shows itself clinically, and therefore psychological assessment after diagnosis may not be relevant to an investigation of factors determining susceptibility to cancer. Only prospective studies on large scale and over a long period could overcome these difficulties.

References

- Cooper, C. L. (1982): Psychosocial stress and cancer. *Bulletin of the British Psychological Society*, 35:50 (After Taylor et al., 1988).
- Coppen, A.; and Metcalfe, M. (1963): Cancer and extraversion. *Br. Med. J.*, 2: 18.

- De vita, V. T.; Jaffe, E.S.; and Hellman, S. (1985): Hodgkin's disease and the non-Hodgkin's lymphomas. In cancer: Principles and Practice of Oncology. 2nd edition. Edited by V.T. De-Vita; S. Hellman; and S. A. Rosenberg. Philadelphia, J.B. Lippincott Company.
- Duszynski, K. R.; Shaffer, J. W.; and Thomas, C.B. (1981): Neoplasm and traumatic events in childhood: Are they related? Arch. Gen. Psychiatry, 38: 327.
- Evans, N. J. R.; Baldwin, J. A.; and Gath, D. (1974) : The incidence of cancer among inpatients with affective disorders. Br. J. Psychiatry, 124: 518.
- Gawad, M.; Guirgis, W.; and Rakhawy, Y. (1972) : Middle sex Hospital Questionnaire (Arabic version), Cairo.
- Greenberg, R. P.; and Dattore, P. J. (1981) : The relationship between dependency and the development of cancer. Psychosom. Med., 43 : 35.
- Greene, W. A. (1975) : Hematology and the derivation of psychosomatic concepts. Arch. Intern. Med., 136 : 138.
- Hagnell, O. (1966) : The premorbid personality of persons who develop cancer in a total population investigated in 1947 and 1957. Ann. N. Y. Acad. Sci. 125 : 846.
- Hersh, S. P. (1985): Psychological aspects of patients with cancer. In cancer: Principles and Practice of Oncology. 2nd edition. Edited by V. T. De Vita; S. Helman; and S. A. Rosenberg Philadelphia, J. B. Lippincot Company.
- Kerr, T. A.; Schapira, K.; and Roth, M. (1969) : The relationship between premature death and affective disorders. Br. J. Psychiatry, 115 : 1277.
- Kissen, D. M. (1967) : Psychosocial factors, personality, and lung cancer in men aged 55 - 64. Br. J. Med. Psychol., 40 - 29.
- Levi, R. N.; and Waxman, S. (1975) : Schizophrenia, epilepsy, cancer, methionine and folate metabolism pathogenesis of schizophrenia. Lancet, 2: 11.
- Miller, F. R.; and Jones, H. W. (1948) : The possibility of precipitating leukemic state by emotional factors. Blood, 3: 880.
- Scurry, M. T.; and Levin, E. M. (1978): Psychosocial factors related to the incidence of cancer. Abstract in Experta Medica, Psychiatry, Vol. 43.1, 24.
- Shekelle, R. B.; Raynor, W. J.; Ostfeld, A. M.; Garron, D. C.; Bieliauskas, L. A.; Liu, S.C.; Maliza, C.; and Paul, O. (1981): Psychological depression and 17 years risk of death from cancer. Psychosom. Med., 43: 117.
- Stien, M.; Schleifer, S.; and Keller, S. (1980): "Immune disorders". In comprehensive Textbook of Psychiatry. 3rd edition. Edited by Il. I. Kaplan, A. M. Freedman and B. J. Sadock, Williams & Wilkins, Baltimore / London. Vol. 2, P. 1961.
- Stewart, F. M.; and Hess, C. E. (1987) : Malignant lymphomas. In Leavell and Thorup's Fundamentals of clinical Hematology, Fifth edition. Edited by Oscar A. Thorup. Philadelphia, W. B. Saunders Co. P. 616.
- Wintrobe, H. M.; Richardlee, G.; Boggs, D. R.; Bithell, T. C.; Athens, J. W.; and Foerster, J. (1974) : Clinical Hematology, seventh edition. Philadelphia, Lea & Febiger.

Étude De Quelques Facteurs Psychologiques En Relation Aux Malignancis

Cette étude a été faite sur 30 patients de malignancis à l'attenance de l'unité d'oncologie à l'hôpital de l'université de Zagazig. Des contrôles ont été élu parmi les employés à H.U.Z. "Middlesex Hospital questionnaire" a été utilisé dans l'assement psychologique en addition à l'assement psychiatrique clinique. Les résultats ont révélé une prépondérance dans le traitement de l'extraversion dans ces patients. Anisi que l'histoire passée du trauma de l'enfance et de l'adolescence a révélé un incident fréquent à un seul événement qui est la mort parentale, l'histoire passée des désordres psychiatriques n'a pas été conclusive, cependant l'histoire passée du dépression était plus fréquente que d'autres désordres. Les patients ont marqué des niveaux pathologiques dans la dépression, des scales d'inquiétude et de somatique de M.H.Q. qui sont significativement différents du contrôle, de plus, M.H.Q. a prouvé une augmentation de l'obsession à un niveau pathologique dans ces patients qui n'est pas significativement différente des contrôles.

بعض العوامل النفسية المرتبطة بالأمراض السرطانية

تم في هذا البحث دراسة ثلاثين حالة من المصابين بالأمراض السرطانية والمتريدين على وحده الأورام بمستشفى الزقازيق الجامعي وكذلك على عينه ضابطه من الأصحاء من العاملين وقد تم استخدام مقياس مجموعة أسئلة مستشفى (ميدل سكس) في تقييم الحالة. بالمستشفى وقد وجد أن السمة الشخصية الغالبة في. النفسية بالإضافة إلى التقييم الإكلينيكي النفسي وأن هؤلاء المرضى في فترة الطفولة والمراهقة يتعرضون. المرضى هي الشخصية الإنسائطية لخبرات مؤلمة وخاصة وفاة أحد الوالدين، وقد أظهرت النتائج أيضاً أنه من المحتمل وجود علاقة عكسية بين الإصابة بالفصام وحدوث السرطان وعلى العكس فإن الإكتئاب هو أكثر الإضطرابات النفسية التي قد تسبق حدوث السرطان مع أن النتائج لم تكن جازمة ومن خلال مقياس ميدل سكس للشخصية تميز هؤلاء المرضى عن العينة الضابطة في مقياس الإكتئاب والقلق والنفسجسمية كما أن هؤلاء المرضى قد حصلوا على درجات مرتفعة على مقياس الوسواس ولكن الفرق بين المرضى والعينة الضابطة لم يكن ذا دلالة إحصائية.