SERUM IMMUNOGLOBULINS IN CARCINOMA CERVIX

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SUMMARY

Fifty cases of carcinoma cervix and 20 control cases were studied to estimate serum immunoglobulin level. Immunoglobulins were higher in carcinoma cervix as against control cases. IgG and IgA levels were more sensitive as compared to IgM. Immunoglobulin levels were higher in early stage as against late stage of the disease, suggesting that the level of immunoglobulins were not directly related to tumor volume. The level of immunoglobulins were lower in treated group as against untreated group signifying the favourable response to treatment. Serial estimation of immunoglobulins, therefore, can be used as a guide to the effectivity of the treatment and also as an indicator of early recurrence.

INTRODUCTION

Carcinoma cervix is second commonest malignancy in females after carcinoma breast. Body reacts against any foreign tissue by producing immune reaction. This basic principle of immunity can be utilized in etiology, early diagnosis, treatment, recurrence of the disease and predicting its prognosis. Production on various antibodies against tumor antigen is reflected as a change in scrum immunoglobulin level (Barlow and Bhattacharya, 1975). The alteration in serum immunoglobulin level was detected in gunaecologic cancers by many workers (Debdas, 1987; Disaia et al, 1973; Levi, 1971; Mclaughlin et al 1979). Only few reports are available regarding estimation of serum immunoglobulins in carcinoma cervix (Seth, 1979; Vasudevan et al 1971; Sinha, et al 1985).

Therefore, present study is carried out to estimate serum immunoglobulins level in patients with carcinoma of cervix.

MATERIAL AND METHODS

Total of 70 cases which were admitted in S.M.S. Medical College Hospital, Jaipur

from June 1987 to December 1988 were studied.

These included 50 cases of proved carcinoma cervix (group A) and 20 control cases (group B).

Detailed history and clinical examination of each case was recorded. Diagnosis of carcinoma cervix was established by cytological and histopathological examination of the lesion. Staging was done according to Classification adopted by International Federation of Obstetrics and Gynaecology.

Routine haematological, relevant radiological and endoscopic examinations were performed. Quantitative estimation of serum immunoglobulins was done by single radial immunoglobulinsmethod of Mancini et al (1965) using Tri-Partigen immuno diffusion plates to IgG, IgA and IgM, supplied by Hoechst India Limited. Serial estimation of immunoglobulin was done every 10 days in patients undergoing surgery and/or radiotherapy.

OBSERVATIONS AND DISCUSSION

Total of 70 patients were studied, out of which 50 patients (group A) were of carcinoma cervix and 20 control (group B), (Table I). The Levels of different immunoglobulins in our study in carcinoma cervix patients and control group were comparable to the values obtained by Vasudevan et al (1971).

The levels of IgG and IgA in carcinoma cervix patients were significantly higher as compared to control cases. However, no significant difference was noted in IgM in either group.

The higher values of immunoglobulins in carcinoma cervix patients as against control group indicates an immune reaction against tumor tissue (Vasudevan et al 1971; Sinha et al 1985).

Most of our patients (60%) were in stage III and IV as shown in Table II. The levels of circulating immunoglobulins were higher in early stages as compared to late stages. There was a gradual fall in the level of IgG and IgA from stage I to stage IV of the disease (Table II). However, the level of IgM in stage III was lower as compared to stage IV.

The higher level in stage I and II as compared to stage III and IV may be due to better immune response in early stage. Similar observations were also reported by Weintraub et al (1973). Therefore the level of immunoglobulins in carcinoma cervix is directly related to the degree of immune response and is not a reflection of tumor volume.

Weintraub et al (1973) reported the inverse relationship between the level of immunoglobulin and tumor volume which is also reported in our series.

There were 49 cases of squamous cell carcinoma and only 1 case of adenocarcinoma. The mean level of IgG, IgA and IgM for squamous cell carcinoma was 1798, 248.3 and 273 mg percent respectively, while for adenocarcinoma it was 1597, 196.20 and 176.65 mg% respectively. The level of IgG, IgA and IgM were higher in squamous cell carcinoma as against adenocarcinoma. However, since there was only one case of adenocarcinoma, no definite conclusion can be drawn for lack of comparative number of patients in two groups.

TABLE I

Mean serum immunoglobulin level in carcinoma cervix patient and control group

Group	Total No.of patients	Mean immunoglobulin level (mg%)		
		IgG	IgA	IgM
Patients with carcinoma cervix	50	1941.4	255.84	271.56
		95.55	112.89	
Control	20	1215.9	177.50	229.35
		39.69	72.21	
t		5.1341	3.3948	1.859
p		0.001	0.001	0.05

TABLE II

Serum immunoglobulin and stage of the disease

State	No.of patients	Mean level of serum immunoglobulins (mg%)		
		IgG	IgA	igm
I	8	2376.0	327.7	375.12
II	12	2198.0	295.1	294.00
III	26	1903.3	285.6	206.86
IV	4	1811.0	248.6	241.56

TABLE III

Serum immunoglobulin level in treated and untreated group of carcinoma cervix

Stage	No.of patients	Mean level of serum immunoglobulins (mg%)		
		IgG	IgA	IgM
Untreated	50	2194.00	273.05	271.35
S.D.		337.73	66.66	116.72
Treated	16	1404.50	185.25	272.01
S.D.		412.32	106.00	85.67
t		5.885	3.721	0.207
p		0.001	0.001	0.05

Patients who have undergone surgery and/or radiotherapy were grouped as treated while untreated group includes patients in whom no definite therapy was instituted (surgery and/or radiotherapy). These estimations of immunoglobulins in treated group was done one month after completion of therapy. The untreated group had higher level of immunoglobulins as compared to treated group as shown in Table III which is statistically significant for IgG and IgA. However, difference in the level of IgM in two groups was statistically not significant.

The higher values in untreated patients can be explained by continuous immune reaction against the tumor tissue. Similar observations were made by Vasudevan et al (1971).

The immunoglobulin levels gradually decreased in all patients in our series with the time after starting of therapy in the form of surgery and/or radiotherapy. Therefore, the serial measurement of immunoglobulins can be used in determing the effectivity of particular mode of treatment and in predicting the prognosis of the disease. The increase in the level of immunoglobulins on follow up of patients can be used as an indicator of early recurrence of disease (Dudd. et al 1983).

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