

elicitation of this relaxation response^{20,21} may not only reduce the high blood-pressure but may also maintain the reduction. Brod²² demonstrated that the haemodynamic pattern in patients with essential hypertension under resting conditions is similar to that found in normotensive people in response to emotional stress.

It is postulated that reduction in B.P. is brought about by a lower sympathetic tone, which is maintained by altered habitual interaction with the environment.

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A CRITICAL SEARCH FOR EVIDENCE OF CHANGES IN LEVELS OF CIRCULATING IgE IN PATIENTS WITH CANCER

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Summary

Serum-IgE levels in 95 patients with various advanced malignant conditions were determined by the radioimmunosorbent test. The results obtained did not support the claims of other workers that a high proportion of untreated cancer patients have extremely high circulating IgE levels, attributable to the release of a tumour constituent which interferes with this radioimmunoassay procedure.

Introduction

ALTHOUGH antibodies of the IgE class have been implicated in immediate hypersensitivity phenomena,

published reports increasingly claim that IgE is involved in other types of immune processes. Notable amongst these is the report of reduced circulating IgE levels in cancer patients who had been treated with cyclophosphamides, and of similar findings in a high proportion (approximately 50%) of untreated patients with various advanced neoplasms.^{1,2} More surprising was the finding of apparently very high circulating IgE levels in the sera of other cases with untreated advanced neoplasms, which were attributed to the release of a substance from the tumour which inhibited the binding of IgE to antibody in the solid-phase radioimmunoassay procedure.

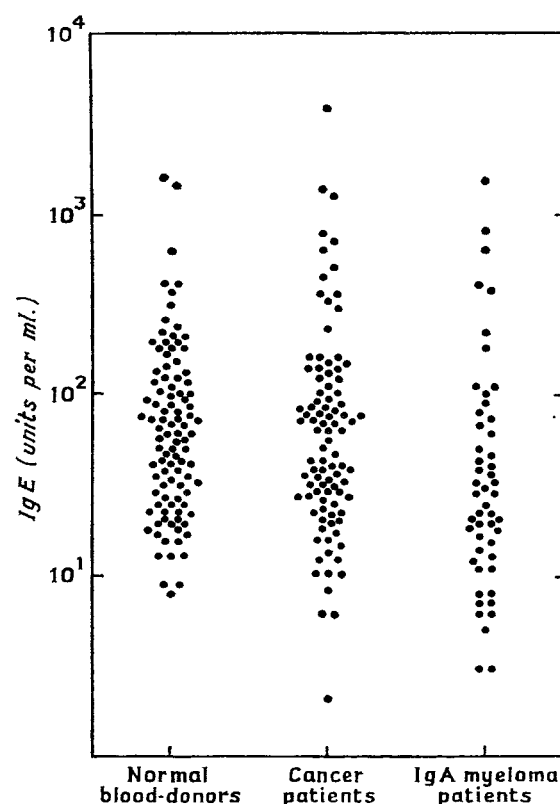
We attempted to confirm these interesting observations, since other studies,³ in laboratory animals, have demonstrated reaginic antibody responses to injection of tumours and alloantigens.

Since the apparent anomaly in the previous observations could have reflected a limitation in one or other of the two commercial IgE assays used, we measured IgE by a radioimmunosorbent procedure which has been developed and extensively applied in our own laboratories.⁴

The serum-IgE levels of a relatively large group of cancer patients (not including patients with myelomatosis) were compared with those of a control group of normal blood-donors of comparable age-range and with those of a group of patients with IgA myelomatosis.

Technique

Serum-IgE levels were measured by the radioimmunosorbent test⁵ using cyanogen-bromide-activated microcrystalline cellulose ('Sigmacell') to which sheep anti-human IgE had been coupled as immunosorbent (raised against the P.S. myeloma protein by



Comparison of serum-IgE levels of 95 cancer patients (with various advanced malignant conditions other than myelomatosis) with those of 100 blood-donors and of 51 IgA myeloma patients.

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TABLE I—SERUM-IgE CONCENTRATIONS, RANGE, MEANS, AND CONFIDENCE LIMITS

Origin of serum	Sample size	Serum-IgE (units per ml.)	
		Arithmetic mean (range)	Geometric mean (± 2 S.D.)
Normal blood-donors ..	100	122 (8-1660)	62 (7-524)
Cancer patients ..	95	169 (2-3950)	58 (4-780)
IgA myeloma patients ..	51	114 (3-1600)	34 (2-576)

TABLE II—T-TEST RESULTS (FROM ANALYSIS OF LOGGED DATA)

Groups compared	d.f.	t	P
Cancer with normal sera ..	193	0.34	N.S.
IgA myeloma with normal sera ..	149	2.92	< 0.01
Cancer with IgA myeloma sera ..	144	2.33	< 0.05

N.S. = not significant.

Dr D. Catty) and human myeloma IgE N.D. (kindly provided by Dr S. G. O. Johansson) as “antigen”. The amount of immunosorbent used in each assay tube (i.e., 25 µg.) was such that the uptake of ¹²⁵I-IgE in the absence of unlabelled IgE was about 10–20% of the total amount of radiolabelled IgE added. A standard curve was prepared by measurement of the IgE content of dilutions of a pool of African sera of high IgE concentration, which had been calibrated by comparison with the WHO reference standard 68/341 (containing 10,000 I.U. IgE per ml.). All tests were performed in duplicate and the mean values taken.

Results

Serum-IgE concentrations in 95 patients with various advanced malignant conditions other than myelomatosis were measured; as were, for comparison, the levels in the sera of 51 patients with IgA myelomatosis. No distinction was made between patients being treated with cyclophosphamides and those who were not, since this information was not obtained before undertaking the assays. The specimens of sera on which the tests were performed had been stored for less than seven days in frozen form.

The results are shown in the accompanying figure, in which the serum-IgE levels of both groups of patients are compared with those of 100 healthy blood-donors. The ranges, means, and confidence limits of the three sets of data are given in table I, and the results of a statistical comparison (by the *t* test) of the serum-IgE levels of each of the pathological groups with those of the blood-donors and with each other are provided in table II.

Discussion

Serum-IgE levels in the 95 cancer patients did not differ significantly (see table II) from those of the normal (control) group. Our evidence does not support the observations of Jacobs et al.^{1,2} that a substantial proportion (i.e., around 50% of 200 cases) of untreated patients had extremely high (e.g., >100,000 I.U. per ml.) serum-IgE levels as determined by radio-immunosorbent assay, which they attributed to release into the circulation of an inhibitory substance which interfered with the binding of IgE to anti-IgE solid-phase immunosorbent.

Admittedly, we did not distinguish between un-

treated and treated patients in the group of 95 cases of cancer, but if the frequency of “IgE-inhibitor” was as high as 50% we would have expected to have found some examples of this phenomenon. On the contrary, our results are consistent with the earlier observations of Augustin and Chandradasa⁶ on the serum levels of cancer patients determined by the radioactive single radial diffusion technique, and, indeed, with those of Jacobs et al.¹ as determined by this type of procedure.

Our observation that serum-IgE levels of 51 IgA myeloma patients were significantly lower (see table II) than those of the control group was not altogether surprising, since decreased levels of the other major classes of immunoglobulin are usually found in such cases of gammopathy. We did not obtain any evidence which supported claims^{1,2} that circulating IgE levels are extremely high in a proportion of patients with various other forms of advanced neoplasms.

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BONE-MARROW CELLS
RESISTANT TO CHLORAMPHENICOL IN
CHLORAMPHENICOL-INDUCED APLASTIC
ANÆMIA

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Summary The effect of chloramphenicol and thiamphenicol on normal bone-marrow colony formation in the agar-culture system was assessed. The concentrations of these drugs which inhibited colony formation in vitro were similar to their therapeutic plasma concentrations in vivo. Bone-marrow from one patient with chloramphenicol-induced aplastic anæmia and from another who had recovered from such anæmia was resistant to the drug and also showed reduced proliferative capacity.

Introduction

REPORTS of the successful treatment of aplastic anæmia by intravenous infusion of allogeneic bone-marrow cells, and the cytogenetic evidence of marrow repopulation by donor cells, strongly suggest that aplastic anæmia is the result of stem-cell failure