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IGE LEVELS IN SERUM, SALIVA, AND URINE OF NORMAL INDIVIDUALS

By

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Although a number of reports of IgE levels in serum of normal and various diseases are available, there is less information of IgE levels in various secretions.

We wish to report the measurements of IgE levels in saliva, serum, and urine from normal individuals using a sensitive solid phase radioimmunosorbent test.

MATERIALS AND METHODS

Serum, saliva, and urine samples were obtained from 23 adult non-allergic persons. The serum samples were diluted 10 fold with phosphate buffer saline (PBS) pH 7.2 for testing, and the saliva samples were centrifuged at 20,000 RCF for 60 minutes, and urine samples were centrifuged at 2000 RCF for 30 minutes and used undiluted.

A solid phase radioimmunoabsorbent technique was used as described previously (5). The globulin fraction of monospecific sheep anti IgE antisera* was diluted 40 times and used to coat the wells of disposable plastic plates. Purified myeloma IgE** was labelled with ¹²⁵Iodine using Chloramine T to give 1 ng of IgE labelled with 0.05 μ C ¹²⁵I. Standard inhibition curves were prepared using pooled normal human serum after calibration against W.H.O. reference IgE standards. The standards were diluted in PBS when saliva and urine samples were tested, and were diluted in 1 per cent human serum albumin (HSA) in PBS when serum samples were tested.

* Pharmacia Laboratories Inc., 800 Centennial Ave. New Jersey 08854.

** PS myeloma plasma was kindly supplied by Dr. McIntyre and purified as described previously.

0.1 ml aliquots of the samples or standards were incubated with the sheep anti-IgE antiserum coated wells for six hours, 0.05 ml of ^{125}I labelled IgE was then added and incubation was continued overnight. After washing with PBS and tap water the wells were cut out with scissors and the bound radioactivity estimated using a gamma spectrometer.

RESULTS AND DISCUSSION

The IgE concentration in serum, saliva and urine of 23 individuals are shown in Table 1.

The serum IgE levels in normal individuals showed a range from no detectable IgE to 100 U/ml IgE. The mean was 22.7 U/ml with a median value of 10 U/ml.

The saliva IgE value showed ranges from no detectable IgE to 500 U/ml with a mean of 47.2 U/ml and median value of 11 U/ml.

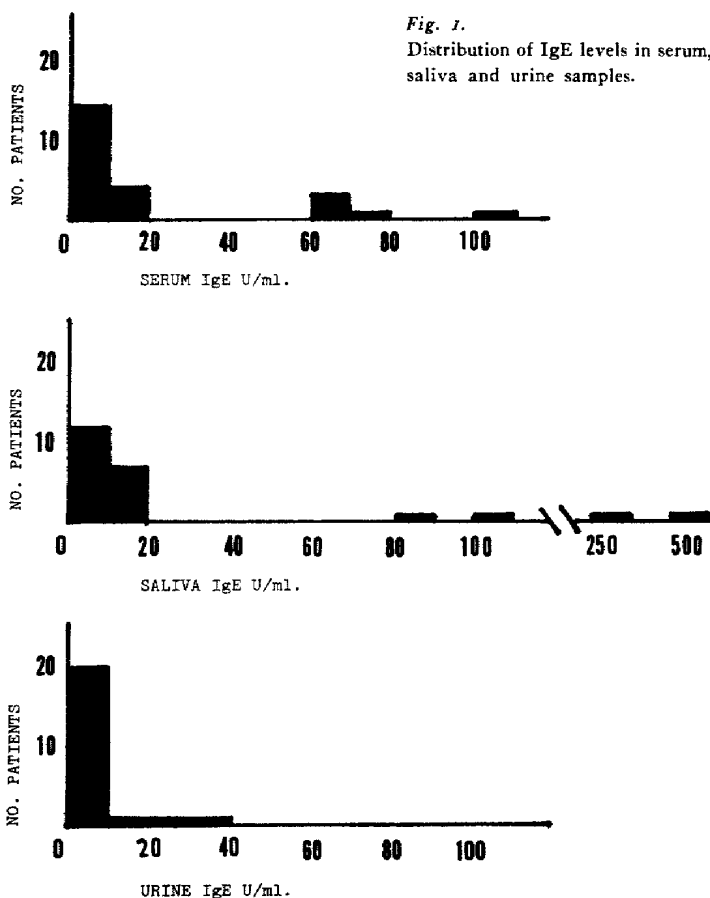
The urine IgE levels ranged from no detectable IgE in one

TABLE 1
IgE Levels in Serum, Saliva and Urine Samples of Normal Individuals

Patients	Serum IgE U/ml	Saliva IgE U/ml	U/ml Urine IgE
P.F.	3	0.5	8
R.V.	65	0	8
R.C.	60	0	6
R.I.	10	500	0
F.S.	10	80	8
P.J.	100	1	1
S.G.	0	1	2
R.M.	10	0.5	6
R.M.	10	9	8
K.O.	10	4	7
S.V.	0	13	2
A.W.	0	7	6
R.C.	20	100	16
G.N.	3	7	3
S.H.	5	20	2
M.K.	5	8	4
P.S.	60	16	30
J.F.	20	4	7
A.O.	10	15	2
K.E.	5	15	8
D.W.	75	250	23
B.C.	20	18	8
M.J.	20	15	8

Fig. 1.

Distribution of IgE levels in serum, saliva and urine samples.



sample to 30 U/ml, with a mean value of 7.5 U/ml and median value of 6.5 U/ml.

The distribution of IgE levels in sera, saliva and urine are shown in Figure 1.

There was no obvious correlation in the IgE levels of serum, saliva, and urine in the individuals studied. In some

cases high serum IgE levels were found with low saliva and urine IgE levels. Of particular interest however is the occurrence of high levels of IgE in saliva or urine even when the serum IgE levels were low. The elevated IgE levels in saliva or urine would suggest that there is local production of IgE or rapid excretion of IgE from the serum.

The serum IgE levels are somewhat lower than the mean value of 80 U/ml reported earlier using a larger sample (1). Although it is generally assumed that 1 U is equivalent to 1 ng purified myeloma IgE, *Bazaraal & Hamburger* (1) have reported 1 U is equivalent to 2.42 ng of purified myeloma IgE. *Johansson* (4) has reported serum IgE level to have a mean value of 248 ng/ml in normal individuals and *Gleich et al.* (3) have reported a mean value of 79 ng/ml serum IgE.

We found the concentration of IgE in saliva to be higher and more variable than the 1-10 ng/ml range reported by *Bennich & Johansson* (2). We also observed that saliva from four individuals showed IgE levels of 500, 200, 100 and 80 U/ml respectively. The reason for the high levels of IgE in these individuals is currently under investigation.

We found urine IgE levels to be fairly consistent. The values, however, were higher than the approximately 1 ng/ml values reported by *Turner et al.* (6). As IgE has a molecular weight of approximately 200,000 it will not be expected to be filtered easily through the kidney glomeruli and therefore the high levels of IgE found in the urine is probably due to local IgE production.

The difference in the value of IgE in serum, saliva, and urine reported here as compared to others, is possibly due to the different procedures and radioimmunoassay methods used.

The discrete distribution of IgE levels in various tissue fluid strongly suggests that IgE could be involved in local immune phenomena. Further studies on the level of IgE in various secretions would help to clarify the role of IgE in normal and pathological conditions.

SUMMARY

The IgE levels in serum, saliva, and urine from 23 normal individuals were investigated using a sensitive radioimmunoabsorbent assay technique. The mean serum IgE concentration was 22.7 U/ml, the mean saliva IgE concentration was 47.2 U/ml, and the mean urine concentration was 7.5 U/ml. There was no correlation between serum, saliva or urine IgE levels in the individuals studied.

The elevated levels of IgE observed in saliva and in urine of some individuals with low serum IgE levels indicate that there is either unusual rapid excretion of IgE, and/or marked local production of IgE.

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