Presence of 'B' cell in GALT ion inhibits homologous antibody

GALT and BM by γ-rays on the delayed hypersensitivity response whereas in ATS treated group, antitesticular antibody formation week of allergization, which reduced in BM irradiated guineapigs, anti-week of allergization. Antikidney developed after third week of allerg-

and tonsill ilica of the embryonic and neonatal lymphoid antibody and antibody fragments e. Lancet, 1 : 1126-1127, 1967. tannic acid and subsequent haemagglutina- R. Sutherland and R. A. Good. Lancet, 1 :

language Book Society, 7th edition, 1965; arthritis in rat by heterologus antilymphocyte


The mammalian homologue of the avian destruction of lymphoid tissue I. Lympho-


lymphocyte antisera to inhibit hypersensi-

from the etiology of Indian medicine, the voluntary retention of urine and the other natural urges also have been considered to be very important factor in the etiology

INTRODUCTION

As early as 1899, Sherrington demonstrated that reflex vascular responses are obtained by the distension of certain hollow visceras. Later on the same has been established in experimental animals as well as in human subjects (7, 11, 13, 16). It has been suggested that the pressor response was brought about reflexly by splanchic vasoconstriction and active vasoconstriction in the renal circulation (11, 13) as this pressor response was totally abolished after the bilateral splanchicotomy (11). On the contrary, Prabhaker et al. (13) have observed that even after the ganglion blockade and reserpine the rise in blood pressure was not abolished, indicating the release of some vasoconstricting humoral substances in the circulation responsible for the increase in blood pressure.

In the literature of Indian medicine, the voluntary retention of urine and the other natural urges also have been considered to be very important factor in the etiology
of several endogenous stress disorders. Therefore, the present investigation has been undertaken to observe the level of vasoconstricting hormones (catecholamine (CA), serotonin (5-HT)) along with measurement of blood pressure before and after voluntary retention of urine.

MATERIALS AND METHODS

In a series of 25 normal healthy human volunteers of 20–45 years, the effect of retention of urine on biogenic amines and certain physiological parameters has been examined.

In the morning at about 8 A.M., the blood and urine samples were collected and the blood pressure, pulse rate, respiration rate were recorded. Then the volunteers were given 1.5 litres of water to drink and instructed to hold the urine as long as possible and report the first feeling of micturition. After maximum voluntary holding, the blood sample was collected and the blood pressure, pulse rate, and respiration rate were recorded. Then volunteers were allowed to pass urine which was collected. The time of drinking water, the first feeling of micturition and passing of urine were also recorded.

Blood samples were collected in heparinized tubes and plasma was subjected for the fluorometric estimation of catecholamine (4) and serotonin (15). Urine samples were collected over conc. HCl to maintain pH between 2–3 for stability of catecholamine. Urine was analysed for the catecholamine (1) and 5-hydroxyindoleacetic acid (5-HIAA) estimation (6) which were expressed in terms of creatinine (cr.).

The results were expressed as mean ± SEM and comparison was done by student ‘t’ test.

RESULTS

Biogenic amine changes:

There was a significant rise in plasma (P<0.01) as well as urinary catecholamine level (P<0.001) after retention of urine. The plasma 5-HT was also increased but not very significantly (P<0.05) while the urinary 5-HIAA (metabolite of 5-HT) increase was quite significant (P<0.001), (Table I).

Physiological changes:

As regards the blood pressure, both the systolic and diastolic pressures were increased significantly (P<0.01).

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Parameters</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Biogenic amines:</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Urinary CA (μg/l)</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Urinary 5-HIAA (μg/l)</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Plasma CA (μg/ml)</td>
<td></td>
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<tr>
<td>5.</td>
<td>Plasma 5-HT (ng/ml)</td>
<td></td>
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<tr>
<td>6.</td>
<td>Physiological</td>
<td></td>
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<tr>
<td>7.</td>
<td>parameters</td>
<td></td>
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<tr>
<td>8.</td>
<td>B. P. (mm. Hg)</td>
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</tr>
<tr>
<td>9.</td>
<td>(i) Systolic</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>(ii) Diastolic</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Respiration rate</td>
<td></td>
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<tr>
<td>12.</td>
<td>Pulse rate</td>
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</tr>
</tbody>
</table>

TABLE I: Effect of urine retention on biogenic amines and physiological parameters

Haemodynamic distension of pelvic organs is supposed to cause the rise in blood pressure level in man. The increased catecholamines and serotonin are supposed to cause the rise in blood pressure increment in animals (10,14,17).

It is an established fact that the blood pressure and pulse rate rise in response to voluntary micturition. In the present study the rise in pulse rate, respiration, and blood pressure level in man was ascribed to the increased catecholamines and serotonin which are released during micturition (2,5,12).

Thus it is obvious that the increased catecholamines and serotonin are released into the blood stream during micturition and subsequently collectively increase the blood pressure and pulse rate.
The present investigation has been concerned with the effects of voluntary retention of urine on biological amines and physiological changes. Urine samples were collected and the effect of physiological parameters was assessed. The results showed a significant increase in blood pressure, catecholamine (CA), and serotonin (serotonin) levels, with a corresponding increase in heart rate and respiration rate. The data were statistically analyzed and the results are presented in Table I.

**DISCUSSION**

Haemodynamic changes have been reported by various workers following the distension of pelvic organs, especially the bladder and rectum. The increased blood pressure level in the present study is consistent with the results of these workers. The increased catecholamine and serotonin levels support the suggestion of Prabhaker et al. that some vasoconstricting humors also participate in the blood pressure increment in addition to reflex mechanisms. Catecholamine and serotonin are supposed to cause the blood pressure increase due to their vasoconstricting properties.

It is an established fact that normal individuals respond to stress with the increase in blood pressure and catecholamine excretion due to sympathetic stimulation. In the present study, the bladder distension due to voluntary retention of urine causes an increase in pulse rate, respiration rate, blood pressure, and catecholamine along with the increase in serotonin level, which are also reported to be increased in stressful situations.

Thus, it is obvious that retention of urine is capable of producing stress in the body, which is reflected in the physiological as well as biochemical parameters. Hence, in day
to day life, it may be a contributory factor in the aetiology of endogenous diseases in general and psychosomatic disorders as envisaged in the Ayurvedic literature.

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