

The serum aldolase activity was determined by the method as per Sigma technical bulletin No. 752 based upon the procedure by Sibley and Lehninger (5) and Wolff *et al.* (9). The hexokinase activity was measured by the method of Sols and Krane (7).

RESULTS

In all the patients serum aldolase and hexokinase activities were determined before beginning of the treatment. Table I shows the activities of aldolase and hexokinase in cases of breast carcinoma, controls and benign group.

TABLE I : Serum aldolase and hexokinase activities.

Group	No. of cases	Aldolase Sigma units/ml (Mean \pm S.D.)	Hexokinase unit/mg protein (Mean \pm S.D.)
Control	25	6.44 \pm 2.05	9.43 \pm 2.24
Benign	20	6.12 \pm 1.74	10.04 \pm 2.46
<i>Breast Carcinoma</i>			
Group I	26	7.24 \pm 0.83	10.15 \pm 3.75
Group II	82	9.92 \pm 1.32*	15.56 \pm 3.87*
Group III	44	12.53 \pm 2.72*	20.53 \pm 5.62*

*P < .001.

DISCUSSION

The purpose of the study was to determine the importance of serum aldolase and hexokinase estimation in patients of breast carcinoma and to correlate the values with the presence or absence of benign growth of breast.

The serum aldolase activity shows no difference between controls and benign group. In breast carcinoma patients elevated values of serum aldolase are observed. The elevated serum aldolase activity levels have also been reported by others (4, 5). In group I of breast carcinoma the elevation is insignificant as compared to control group. In group II and III, significantly elevated activities are observed as compared to controls or benign group (P < .001). The elevation is more in group III than group II of breast carcinoma patients. Thus, it is observed that the levels of this enzyme correlated well with the groups of the disease.

Similarly serum hexokinase activities show no difference between control and benign groups. Group I patients of breast carcinoma show normal levels of hexokinase. Group II and III patients show significant elevation as compared to benign group ($P < .001$). The enzyme elevation is more in group III patients as compared to group II. Moderate elevation of this enzyme has been reported in carcinoma of breast tissue (8). Thus serum hexokinase and aldolase correlate well with the groups of the disease.

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