

Mide ve Meme Kanserlerinde Adenozin Deaminaz, Guanaz, 5'-Nükleotidaz ve Citidin Deaminaz Enzim Aktiviteleri

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Özet

Bu çalışmamızda meme kanserli ve mide kanserli hasta serumlarında Adenozin deaminaz(ADA), 5' Nükleotidaz(5'-NT), Guanaz(GUA) ve Citidin Deaminaz (CD) aktivitelerini belirlemek amaçlanmıştır.

Preoperatif ve postoperatif serumlarda bu enzimlerin aktiviteleri karşılaştırıldı. Serumlarda 11 meme kanserli, 10 mide kanserli hastadan ve kontrol gurubu olarak 10 sağlıklı kişiden elde edilmiştir.

Her iki grupta preoperatif serumlarda kontrol gurubuna oranla daha düşük CD aktivitesi ve daha yüksek 5'-NT aktivitesi görüldü. ADA aktiviteleri arasında fark yoktu.

Genel olarak postoperatif serumlarda tüm enzimlerin aktiviteleri artmış olarak bulundu.

Anahtar Kelimeler:Kanser, Enzim.

Adenosine Deaminase, 5'-Nucleotidase, Guanase and Cytidine Deaminase Activities InGastric and Breast-Cancer

Abstract

We determined activities of Adenosine Deaminase, 5'-Nucleotidase, Guanase and, Cytidine Deaminase Activities in sera from patients with Breast Carcinoma and Stomach Carcinoma. We compared the activities of these enzymes in pre and in post operatif sera. The sera were obtained from 11 patients with Breast-Cancer, 11 patients with stomach cancer and 10 healthy subjects as control group. We found lower activity of CD and higher activity of 5'NT in both subject in preoperative sera than those in control subjects, and no difference in the activity of ADA. In general, the activities of all the enzymes were found to be increased in postoperative sera.

Key Words: Cancer, Enzymes.

Adenosine Deaminase (ADA), 5' Nucleotidase (5' NT) and Guanase (Gua) are the enzymes participating in Purine and DNA metabolisms. It has been suggested that ADA and 5' NT have critical roles in the proliferation and maturation of certain types of mammalian cells (1,5,8,12,13,20).

Cytidine Deaminase (CD) enzyme participates in pyrimidine metabolism.

Although there are several reports on the activities of these enzymes in cancer tissues, they are not in good accordance with one another (2-7 and 10-15). According to some reports, such enzymes can be used for

differential diagnosis of several malignancies such as Leukemia and Lymphoma (5,6,10,12,15,21). Thus, we investigated whether they exhibited any differences between preoperative and postoperative sera. For this purpose, we obtained samples from patients with breast cancer and stomach cancer and attempted to investigate this subject.

Materials and Methods

The sera from 11 patients with Breast cancer and 10 patients with stomach cancer ranging in ages from 28 to 70 years (mean \pm SD 52,9 \pm 13,4) were obtained from the Department of Oncologic Surgery, Ankara University, Faculty of Medicine, 10 control sera were obtained from healthy volunteers ranging in

ages from 25 to 45 years (mean \pm SD 34,8 \pm 5,6). All the enzyme activities were assayed by spectrophotometric methods.

ADA, 5' NT, guanase and CD activities were carried out as described in (16,17,18 and 19) respectively. Units of these enzyme activities were expressed in $\mu\text{mol}/\text{min}$.

Results

The findings described in (Table-I, Table-II and Table-III) showed that, the mean ADA activities in breast cancer and in stomach cancer were different. While the activity increased in postoperative sera in breast cancer ($p < 0,05$), there was no difference between preoperative and postoperative values in stomach cancer.

Looking at the data on 5'NT activity both in Breast Cancer and stomach cancer, it was observed that, the activity of this enzyme increased compared to the control group ($p < 0,05$). Although the activities of 5'NT enzyme in both preoperative and postoperative sera have increased ($p < 0,05$) our results showed that, there have been no differences between preoperative and postoperative guanase activities in stomach cancer ($p < 0,05$).

In both breast and stomach cancers, the activity of CD in preoperative sera has been found to be decreased compared to control group ($p < 0,05$).

There have been no differences relative to control group in postoperative term.

We have also evaluated all these enzymes by making groups according to their stages of disease. There were 1 patient at stage I-II and 10 patients at stage III and IV in 11 cases with Breast-Cancer and 2 patients at stage I-II and 8 patients at stage III-IV in 10 cases with stomach cancer. In the correlation analysis, we found no

meaning full correlations between the activities of these enzymes and the stages of the disease. All the patients with both tumors had been taken first or second chemotherapy cure, approximately 1 month before the operation.

Discussion

This study was primarily performed to establish possible usefulness of some DNA Turnover enzyme activities for the diagnostic and prognostic purposes in stomach cancer and Breast Cancer.

The finding given in the Results section reveals that, the behavior of ADA in different malignancies are variable. There might be several reasons for the ADA activity differences observed between cancerous tissues. Perhaps, ADA which is found in cytoplasm has not been increased in this malignancy or the increase has not been reflected to serum.

All though there are several reports on the activities of ADA and 5'NT enzymes in the cancer tissues, they are not in good accordance with one another (2-7 and 10-15). The increased activities of both ADA and 5'NT enzymes in postoperative sera might result from operation stress, since they were assayed in postoperative 10th day. We can say that such comparable studies should be performed on later term after operation. Since 5'NT is an ectoenzyme, it might be diffused into plasma more easily, and its concentrations in serum increased.

There are few reports on guanase activity and no reports on CD activity in malignancies. Decreased CD activity in both tumor types suggests that rate of pyrimidine metabolism has also been changed in breast and stomach carcinoma.

In our opinion, further investigations on DNA turnover enzymes should be done to obtain definitive information in to whether the activities of these enzymes can be used for diagnostic and/or prognostic purposes in carcinogenesis.

Table-I: Mean \pm SD Values of Enzyme Activities in Sera From Patients With Breast Cancer.

X \pm SD	ADA	5'NT	GUA	CD
A	19,47 \pm 9,38 n=11	36,18 \pm 24,02 n=11	1,63 \pm 1,36 n=11	3,71 \pm 3,2 n=11
B	29,92 \pm 10,56 n=7	71,55 \pm 55,44 n=7	3,71 \pm 3,55 n=7	15,99 \pm 17,44 n=7
C	19,59 \pm 10,9 n=10	6,45 \pm 6,15 n=10	0,96 \pm 0,82 n=10	16,03 \pm 12,6 n=10

A: Enzyme Activities in Preoperative Sera.
B: Enzyme Activities in Postoperative Sera.
C: Enzyme Activities in Control Group Sera.

Table-II: Mean \pm SD Values of Enzyme Activities in Sera From Patients With Stomach Cancer.

X \pm SD	ADA	5'NT	GUA	CD
A	19,89 \pm 12,84 n=10	78,30 \pm 6250 n=6	1,27 \pm 2,3 n=10	4,30 \pm 3,12 n=10
B	22,13 \pm 7,93 n=8	41,85 \pm 23,48 n=6	1,34 \pm 1,26 n=8	16,82 \pm 19,34 n=7
C	19,59 \pm 10,9 n=10	6,45 \pm 6,15 n=10	0,96 \pm 0,82 n=10	16,03 \pm 12,6 n=10

A: Enzyme Activities in Preoperative Sera.

B: Enzyme Activities in Postoperative Sera.

C: Enzyme Activities in Control Group Sera.

Table-III: The U Test Results Between C-A, C-B and A-B Groups.

X \pm SD	ADA	5'NT	GUA	CD
C-A *	p>0,05	p<0,05	p>0,05	p<0,05
**	p>0,05	p<0,05	p>0,05	p<0,05
C-B *	p<0,05	p<0,05	p<0,05	p>0,05
**	p>0,05	p<0,05	p>0,05	p>0,05
A-B *	p<0,05	p<0,05	p<0,05	p<0,05
**	p>0,05	p>0,05	p>0,05	p<0,05

* Sera From Patients With Breast Ca.

** Sera From Patients With Stomach Ca.

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