

THE LEVELS OF VITAMIN A IN THE SERUM OF ULCER PATIENTS

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SUMMARY:

In this study the level of vitamin A in the serum of 30 ulcer patients were investigated and the results were compared with the sera of 27 normal. This difference of the vitamin A level between the two groups were statistically evaluated.

ÜLSERLİ HASTALARIN SERUMLARINDA A VİTAMİNİ DÜZEYLERİ

ÖZET:

Bu çalışmada 30 ülserli hastada Vitamin-A'nın serum düzeyleri araştırılmış ve sonuçları 27 normal deneğin serum düzeyleri ile karşılaştırılmıştır. Her iki grup arasındaki Vitamin A düzeyinin farklılığı istatistik olarak değerlendirilmiştir.

INTRODUCTION

Vitamin A, or retinal is a polyisoprenoid compound containing a cyclohexenyl ring. Vitamin A is necessary in higher animals to support growth and health and is particularly necessary for vision, reproduction, mucus secretion and the maintenance of differentiated epithelia(1).

Except for the role of retinoids in vision their mechanism of action is not understood at the molecular level. Several possible mechanisms have been suggested and are under investigation.

One hypothesis proposes that retinoids deficiency the biosynthesis of some glycoproteins is markedly decreased in a number of tissues and that glycoprotein

synthesis stimulated on administration of retinoids. Thus, according to this hypothesis, retinal functions in a manner analogous to the well-documented role of dolichol (Figure 1) which is converted to dolichol phosphoglycosides that are used for glycoprotein formation(2,3,4)(Figure 2,3).

In spite of extensive studies over many years in animals and humans on the pathogenesis of peptic ulcer disease, the etiology and pathophysiology of human peptic ulcer remains still obscure. Appropriate treatment and prevention of peptic ulcer depends on our knowledge of the pathogenesis. The mucosal resistance factors have also been implicated in the pathogenesis of chronic gastric ulcer. The main defensive factor of the stomach is mucus which protects the aggressive effects

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of acid and pepsin. Mucus released by the stomach is a glycoprotein.

Further studies are carried on the cytoprotective effect of vitamin A in ulcer patients.

A beneficial effect of vitamin A has been indicated in the prevention and

treatment of stress ulcer patients. Gastric ulcer can be thought of as a precancerous state and significant negative correlation has been reported between the serum level of vitamin A and development of lung, urinary bladder and epidermal cancers(5,6,7,8).

MATERIALS AND METHODS

MATERIALS: The level of vitamin A in the serum of 30 ulcer patients were investigated and the results were compared with the sera of 27 normal.

METHOD: Retinol and carotens in serum were determined by the method of Carr-Price.

Proteins are precipitated with ethanol and the retinol and carotenes are extracted into light petroleum. After reading the intensity of the yellow colour due to the carotenes the light petroleum is evaporated off and the residues dissolved in chloroform. Carr-Price reagent is added and the amount of blue colour produced read in colorimeter. Since carotens also give some colour, a correction for this made in order to obtain that due to the retinol present. A correction is made for the colour given by the carotenes present. Prepare two standart curves for the colorimeter, one for retinol allowed to react with Carr-Price reagent, the other for carotens similarly treated(9).

RESULTS

Serum vitamin A levels are shown in Table 1. and Fig. 4.

Table 1. Serum Vitamin A levels (mg/100ml) Table 1 and Fig. 4.

Subject	Normal	Ulcer	Subject
1	56.23	27.86	1
2	65.16	22.69	2
3	46.62	26.63	3
4	25.07	28.33	4
5	21.71	26.27	5
6	45.06	30.58	6
7	45.63	15.22	7
8	42.36	20.71	8
9	53.23	29.44	9
10	24.78	20.82	10
11	30.26	21.71	11
12	30.95	20.67	12
13	28.06	34.10	13
14	41.75	30.87	14
15	53.55	19.32	15
16	26.01	31.30	16
17	59.70	12.62	17
18	34.66	17.06	18
19	30.86	23.77	19
20	37.11	11.60	20
21	46.66	19.27	21
22	42.50	20.63	22
23	49.80	21.75	23
24	56.21	10.73	24
25	46.84	27.31	25
26	43.69	9.75	26
27	52.21	11.63	27
		13.53	28
		19.89	29
		32.67	30

$$\bar{X} = 42.10 \pm 2.28 \quad \bar{X} = 21.96 \pm 1.29$$

$$P < 0.001$$

There were significant decreases in the serum vitamin A levels of ulcer patients compared with the normal group ($P < 0.001$).

DISCUSSION

When looking over the existing literature normal serum vitamin A levels were between 15-60 ug/100 ml.

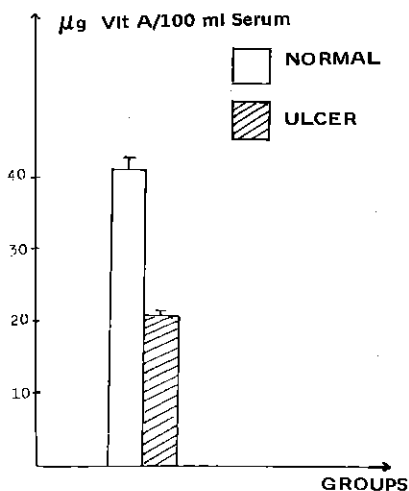


Figure 4. Histograms of vitamin A levels.

We observed that serum vit A levels of ulcer patients were in the lowest values and the control group levels were in the normal range when compared to the literature data.

In retinoid deficiency a significant decrease in glucoprotein synthesis was observed in a lot of tissues (10,11,12).

It is reported that a decrease in mucus depends on glucoprotein which has an important role in ulcer(13,14,15,16).

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