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A Possible Role of Antioxidant Vitamins and Magnesium in the Management of Osteoarthritis

Sobhi Albahri**

Amal Rakaj*

Abstract

Serum levels of vitamins E and C were measured in 15 patients with Osteoarthritis (OA) and those patients received Magnesium 10mg /kg /day for two weeks ,and 15 healthy subjects as a control group

Patients were classified into subgroups ,those with OA according to disease activity and /or severity .

Our data revealed a highly significant lower serum level of vitamin E and vitamin C in patients with OA than normal controls .

Moreover, serum vitamin E concentrations were increased after administration of magnesium in patients with OA .

Furthermore, serum vitamins C and E concentrations were negatively correlated with both disease activity and severity among patients with OA and OA with Magnesium.

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.(3)

:Introduction

(RNA, DNA)

O₂ -

Superoxid anion

(OH⁻)

.(6)

H₂O₂

A E superoxide
(8) (catalase) (desmotase)
(25)(pyroxidase)

(18,22,23)

E)

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A

C

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C

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E

(5)

E

A

A,C,E

C

(17) E

E

C

(4,9)

(17)

:Patients and Methods

E

15

15 (I

)

(6,17,19)

(II

)

	/ /	10
Vit E Vit C	(III)	
X- RAY	ii	
, RF		
CBC	iii	
CRP		
Vit C , Vit E		
80-	ART MAN	
:	(1,12,19)	
High		
performance liquide chromatography		-1
(HPLC)		
		-2
:C		-3
20,) Monaharan and Schwille		
(24		-4
100	100	

0,5 Perchloric / / % 10
 75×10 acid
 0,5
 20 4
 5 600 / 12000
 60 C HPLC
 () Mobile Phase
 250
 2 Isocratic Potassium 13,6
 .HPLC U0.2 Dihydrogen Phosphate
 : 2.34= PH
 () / 1
 C 250 nm
 / 9 3.6
 : E
 75.8 at 292 at 1780 =
 cm-1 . mol -1 (4) David and James (1980)
 :
 () Mobil Phase 0,5
 . / 1 / 0,6

:() I .1 300 mm
 8.03 + 0.63 C . 608
 .9 - 7 / **:Results**
) II .2
 3.2 :(
 + 5.25 / 8.9 - :
 2.20 (/) E .
 .T = 4.13 :() I .1
) III .3 E
 :(/ 6 - 2
 / 1.09 + 4.62 . / 1.14 + 4.30
 . / 6 - 2 :II .2
 1.63 + 3.13 (/) E
 II, III 5.80 - 1.2
 (T = 1.27)
 .(2 , 1) (3 , 2 , 1) .(T = 1.92) I, II
 C E :III .3
 : II .1 5.00 - 1.50
 :E < III E 1.06 + 4.92
 • II
 0.09 + 4.2 E .(T = 1.30)
 . / (/) C .

: •
 + 3.8 E 0.82 + 2.9 E
 . / 0.95 . /
 : •
 + 2.8 E 0.84 + 1.5 E
 . / 0.75 . /
 : •
 2.16 E E
 . / 0.17+
 E 5 4
 :C ◀
 : •
 :C ◀ . / 1.01 + 8.05
 : •
 + 5.32 C . / 1.10 + 3.98
 . / 1.40 . / 1.20 + 3.58
 : •
 4.82 C
 . / 1.05 +
 : •
 + 4.3 C . / 1.25
 :III 5
 :E ◀ .2
 (/)C

(4, 3)

(5, 4)

5

Group I Control		Group II OA		Group III OA with Mg		
VE Ug / ml	V.C Ug / ml	VE Ug / ml	V.C Ug / ml	VE Ug / ml	V.C Ug / ml	
2.50	7.00	5.80	8.80	5.00	5.50	
3.50	7.50	4.70	7.80	4.10	6.00	
4.70	7.80	5.00	8.10	4.80	5.00	
2.00	8.10	4.80	8.90	3.90	5.50	
5.00	7.10	4.70	7.40	5.40	4.80	
3.50	9.00	3.50	4.50	4.20	3.50	
3.10	8.90	2.00	3.50	3.40	6.00	
4.80	8.50	2.80	3.90	5.40	4.80	
4.70	8.00	1.70	4.00	4.80	5.60	
5.80	8.00	4.50	4.00	5.90	3.40	
6.00	8.70	1.70	3.30	6.50	3.90	
4.90	7.90	1.30	3.90	5.20	4.40	
4.80	7.80	1.50	3.50	4.90	4.80	
4.50	7.40	1.20	3.20	5.40	2.00	
4.70	8.80	1.80	4.00	5.00	4.20	
Range	2- 6	700 - 900	1.20 -5.80	3.20 - 8.90	1.50- 500	200 - 600
Mean + SD	4.30 +1.14	8.03 + 0.63	3.13 +1.63	5.25 + 2.20	4.92 + 1.06	4.62 + 1.09
T			1.92*	4.13*		
T					1.30*	1.27*

(1)

Vitamin	Control	O. A	OA with Magnesium
	Mean + SD	Mean + SD	Mean + SD
E	4.30 + 1.14	3.13 + 1.43 T = 1.92*	4.92 + 1.60
C	8.03 + 0.63	5.25 + 2.20 T = 4.13*	4.62 + 1.09

(2)

Vitamin	O. A	OA with Magnesium
	Mean + SD	Mean + SD
E	3.13 + 1.63	4.92 + 1.06 T = 1.30*
C	5.25 + 2.20	4.62 + 1.09 T = 1.87*

(3)

Grade	OA		OA with Magnesium	
	Vitamin E Mean + SD	Vitamin C Mean + SD	Vitamin E Mean + SD	Vitamin C Mean + SD
Grade 0	5.08 -	8.80 -	5.00 -	5.50
Grade I	4.2 + 0.09	8.05 + 1.01	3.8 + 0.95	5.32 + 1.40
Grade II	2.9 + 0.82	3.98 + 1.10	2.8 + 0.75	4.82 + 1.05
Grade III	1.5 + 0.84	3.58 + 1.20	2.16 + 0.17	4.3 + 1.25

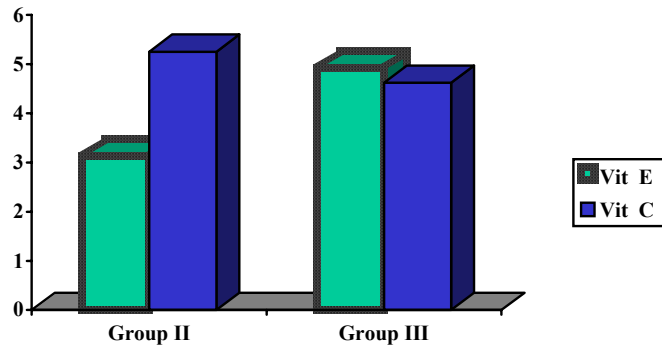
(4)

10 5 II
58.7 75 - 50
. 18 - 15

Group	Grading
II	Vit E - 0.918*
	Vit C - 8.97*
III	Vit E - 0.544*
	Vit C - 0.566*

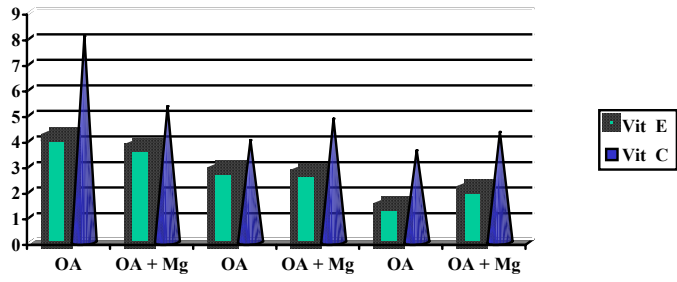
(5)

(III, II C E)



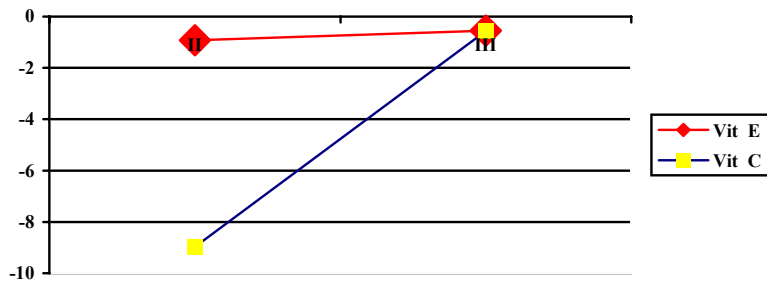
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(III, II C 3 E)



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1.63 +3.13) **Discussion**
 .(1.14 + 3.40
 (P > 0.05 , T = 1.92)
 C E C

8.03+ 3.25 +2.2)
 (.0.63
 .(P > 0.05 , T = 4.13) (8)

E,C (6,10,13,14)
 .(21)
 .(7 , 8 ,23 ,24 ,25)

E
 4.9 + 1.06)
 (.3.13 + 1.63 .(21)

Vit Vit E)
 (C
 E

E , C

E

.(18,22,23)

Vit E Vit C

C

E

C E

.(6,11,14,17)

C E

:Recommendations

E

.C

C

:Summary

E ,

E

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C C E

E

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