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FAMILIAL ENZYMIC PATTERNS: I. SERUM GLUTAMIC OXALACETIC TRANSAMINASE [SGOT] IN THE DENTIST AND HIS WIFE

by

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Abstract

Forty-eight dental practitioners, 48 wives, and 48 women [wives of their dentists] age-paired with the wives were studied in terms of serum glutamic oxalacetic transaminase [SGOT]. The data reveal a statistically significant correlation coefficient only in the older married couples [$r = +0.686$]. Thus, environmental influences undoubtedly play a major role since the SGOT levels are not significantly correlated in the younger marriages.

Introduction

Earlier reports disclosed a significant positive correlation of general symptoms and signs [1,2] and psychologic responses [3] in married couples. Subsequent studies revealed similar parallelisms with regard to blood glucose [4] and serum cholesterol [5]. Finally, a series of reports designed to study familial dietary patterns also revealed positive correlations in the family unit with regard to total caloric consumption [6] and total and refined carbohydrate intake [7].

This series of reports is designed to study the enzymic pattern in the family unit. The first in this series attempts to study serum glutamic oxalacetic transaminase [SGOT]. Specifically, this report is designed to answer the following three questions:

1. What is the relationship of serum glutamic oxalacetic transaminase [SGOT] in married couples?
2. How does the husband-wife correlation compare with the patterns in

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the husband versus an age-paired
unrelated female group?

3. What conclusions may be drawn from these two sets of findings?

Method of Investigation

Three hundred forty-one dentists and their wives shared in this study. These individuals are participants in the multiphasic screening program conducted in Los Angeles under the auspices of the Southern California Academy of Nutritional Research, in Columbus under the aegis of the Ohio Academy of Clinical Nutrition, and in Florida under the sponsorship of the Southern Academy of Clinical Nutrition. Specifically, three groups were studied: 48 dental practitioners, 48 wives, and 48 women [wives of other dentists] age-paired with the wives. The age patterns are summarized in Table I.

Table I
age distribution

age groups	males	wives	unrelated females
20-29	0 [0.0%]	3 [6.3%]	3 [6.3%]
30-39	16 [33.3%]	17 [35.4%]	17 [35.4%]
40-49	20 [41.7%]	23 [47.9%]	23 [47.9%]
50-59	11 [22.9%]	3 [6.3%]	3 [6.3%]
60-69	1 [2.1%]	2 [4.2%]	2 [4.2%]
total	48 [100.0%]	48 [100.0%]*	48 [100.0%]*
mean	43.8	41.2	41.2
S.D.	7.1	8.0	8.0
minimum	32	27	27
maximum	60	60	60
range	28	33	33

*approximate

Serum glutamic oxalacetic transaminase was measured [as Karmen units] in each subject. Table II summarizes the findings. It will be noted that there is no statistically significant difference between the husbands and wives and the wives and unrelated females.

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Table II
serum glutamic oxalacetic
transaminase [SGOT] distribution

SGOT groups [units]	males	wives	unrelated females
0- 9	0	0	1
10-19	12	17	22
20-29	28	23	15
30-39	7	4	7
40-49	1	2	1
50+	0	2	2
total	48	48	48
mean	23	24	23
S.D.	6	12	13
minimum	15	13	7
maximum	43	86	86
range	28	73	79
P	>0.500		>0.500

Results

Question One: In order to resolve the first question, a correlation coefficient was performed for the husband versus the wife [Table III] with respect to SGOT levels. It will be noted that there is no statistically significant correlation [$r = +0.215$, $P > 0.05$]. Hence, in answer to the first question, the SGOT levels were not similar in these married couples.

Question Two: Women age-paired against the wives were used as a third group in the study. The correlation coefficient between the husband and the unrelated female is not statistically significant [$r = +0.132$, $P > 0.05$]. Therefore, in answer to the second question, there is no significant correlation with regard to SGOT levels in these men and women unrelated by marriage.

Discussion

The question arises as to whether time plays a role in these relationships. To resolve this question, the groups were subdivided as near equally as possible into two age categories. Thus, one group of men ranged up to 43 years of age and the other group from 44 and above.

Question Three: The correlation of this particular enzyme in the

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Table III
correlation coefficients of
serum glutamic oxalacetic transaminase
[SGOT] levels

	number of pairs	r	P
husband vs wife	48	+0.215	>0.05
husband vs unrelated female	48	+0.132	>0.05
wife vs unrelated female	48	-0.050	>0.05
husband vs wife			
[husband's age <44]	25	-0.023	>0.05
[husband's age 44+]	23	+0.686	<0.01*
husband vs unrelated female			
[husband's age <44]	25	+0.258	>0.05
[husband's age 44+]	23	-0.058	>0.05
wife vs unrelated female			
[age <43]	22	-0.071	>0.05
[age 43+]	26	-0.123	>0.05

*statistically significant correlation coefficient

husband and the wife, for the entire sample, was not statistically significant. However, when the husband-wife combinations were subdivided with respect to age, the findings are different [Table III]. Specifically, there is still no significant correlation in the younger married couples. However, in the older group, the correlation coefficient [$r = +0.686$] is statistically significant [$P < 0.01$]. A study of the husband versus the unrelated female and the two female groups in terms of age did not show statistically significant relationships in any instance.

Table IV summarizes the husband-wife correlation coefficients for the younger and older couples in terms of the clinical findings [1-3], biochemical observations [5], dietary patterns [6,7], and serum glutamic oxalacetic transaminase. The highest correlation observed in these studies is the correlation of 0.686 in the older couples with regard to SGOT levels. It is possible that all these parameters and others may have, as a portion of their etiologic denominator, one or more common participating factors other than age. There is an abundance of discussion in the current medical literature that one such factor is dietary carbohydrate and that it is causally related to a variety of clinical signs and symptoms including psychologic disorders [8-11], ischemic heart disease [8,12-14], serum fat levels [13],

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Table IV
husband versus wife
correlation coefficients

parameter	married couples	
	younger	older
general symptoms and signs	+0.264*	+0.412*
psychologic findings	+0.124	+0.502*
serum cholesterol	+0.174	+0.558**
daily total caloric consumption	+0.419**	+0.336*
daily total carbohydrate intake	+0.473**	+0.652**
daily refined carbohydrate intake	+0.442**	+0.669**
SGOT	-0.023	+0.686**
* P < 0.05		
**P < 0.01		

varicose veins [14], and peptic ulcer [14].

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