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FAMILIAL ENZYMIC PATTERNS: VI. SERUM GLUTAMIC PYRUVIC TRANSAMINASE [SGPT] IN THE DENTIST AND HIS WIFE [FINAL REPORT]

by

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Abstract

One hundred thirty-eight dental practitioners and their wives were studied in terms of serum glutamic pyruvic transaminase [SGPT]. The data revealed a statistically significant correlation between the husbands and the wives. It is noteworthy that the correlation is not as high as those established for SGOT, LDH, and CPK.

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]. In small and preliminary samples, like patterns were observed with serum glutamic oxalacetic transaminase [6] and lactic dehydrogenase [7]. Subsequent reports with larger samples supported the original observation with serum glutamic oxalacetic transaminase [8] and lactic dehydrogenase [9]. A significant correlation was also found with creatine phosphokinase [10]. Finally, a series of reports designed to study family dietary patterns also revealed positive correlations in the family unit with regard to total caloric consumption [11] and total and refined carbohydrates [12,13].

This series of reports is intended to study the enzyme patterns in the family unit. This particular report attempts to examine serum glutamic pyruvic transaminase [SGPT]. Specifically, this report attempts to answer the following three questions:

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1. What is the relationship of serum glutamic pyruvic transaminase [SGPT] in married couples?
2. How does the husband-wife correlation compare with the patterns in the husband versus an age-paired unrelated female group?
3. What conclusions may be drawn from these two sets of findings?

Method of Investigation

One hundred thirty-eight dentists and their 138 wives shared in this study. These individuals are participants in a multiphasic screening program conducted in Florida under the auspices of the Southern Academy of Clinical Nutrition, in Los Angeles under the sponsorship of the Southern California Academy of Nutritional Research, in Columbus under the aegis of the Ohio Academy of Clinical Nutrition, in Connecticut under the guidance of the Northeast Academy of Clinical Nutrition, and in the San Francisco area under the supervision of the Northern California Academy of Nutritional Research. The age patterns are summarized [Table I].

Table I
age distribution

| age groups | husbands | wives |
|------------|--------------|---------------|
| 20-29 | 3 [2.2%] | 14 [10.1%] |
| 30-39 | 47 [34.1%] | 58 [42.0%] |
| 40-49 | 54 [39.1%] | 46 [33.3%] |
| 50-59 | 30 [21.7%] | 18 [13.0%] |
| 60-69 | 4 [2.9%] | 2 [1.4%] |
| total | 138 [100.0%] | 138 [100.0%]* |
| mean | 43.3 | 39.6 |
| S.D. | 8.2 | 8.1 |
| minimum | 29 | 25 |
| maximum | 64 | 60 |
| range | 35 | 35 |

*approximate

Serum glutamic pyruvic transaminase [SGPT] was measured in Karmen Units in each subject. Table II summarizes the findings. It will be noted that there is a statistically significant difference between the husbands and the wives [$t = 2.950$, $P < 0.005$].

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Table II
serum glutamic pyruvic
transaminase [SGPT] distribution

| SGPT groups | husbands | wives |
|----------------|--------------|--------------|
| 0-10 | 14 [10.1%] | 28 [20.3%] |
| 11-20 | 57 [41.3%] | 69 [50.0%] |
| 21-30 | 35 [25.4%] | 27 [19.6%] |
| 31-40 | 20 [14.5%] | 5 [3.6%] |
| 41-50 | 8 [5.8%] | 5 [3.6%] |
| >50 | 4 [2.9%] | 4 [2.9%] |
| total | 138 [100.0%] | 138 [100.0%] |
| mean | 23.2 | 18.9 |
| S.D. | 12.1 | 12.0 |
| t | | 2.950 |
| P | | <0.005* |
| minimum | 4 | 2 |
| maximum | 71 | 84 |
| range | 67 | 82 |

*statistically significant

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 SGPT levels. It will be observed that there is a statistically significant relationship [$r = +0.185$, $P < 0.05$]. Hence, in answer to the first question, dentists with high SGPT levels are living with women with high levels; conversely, dental practitioners with low levels tend to live with women with low levels.

Question Two: A correlation coefficient was performed between the dentist and the age-paired non-wife and found to be [Table III] not significant [$r = -0.063$, $P > 0.05$]. Therefore, in answer to the second question, there is no significant correlation, with regard to SGPT levels, in these men and women unrelated by marriage.

The additional question is whether time plays a role in these familial enzymic relationships. To resolve this question, the groups were subdivided into near-equal subgroups. Thus, one group of men ranged up to 43 years and the other group from 44 and up. The correlation coefficient [r] is higher and significantly so only in the younger versus the older group [$+0.290$ versus $+0.085$].

Discussion

Table IV summarizes the initial husband-wife correlation coefficients for the entire sample and for the younger and older couples in terms

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Table III
correlation coefficients of serum glutamic
pyruvic transaminase [SGPT] levels

| | number of pairs | r | P |
|--|--------------------|--------|--------|
| husband versus wife | 138 | +0.185 | <0.05* |
| husband versus unrelated female | 138 | -0.063 | >0.05 |
| wife versus unrelated female | 138 | -0.064 | >0.05 |
| husband versus wife [husband's age <44] | 76 | +0.290 | <0.05* |
| [husband's age 44+] | 62 | +0.085 | >0.05 |
| husband versus unrelated female [husband's age <44] | 76 | -0.005 | >0.05 |
| [husband's age 44+] | 62 | -0.100 | >0.05 |
| wife versus unrelated female [age <44] | 98 | -0.105 | >0.05 |
| [age 44+] | 40 | +0.001 | >0.05 |

*statistically significant

Table IV
husband versus wife
correlation coefficients
[initial findings]

| parameter | entire sample | married couples | |
|--------------------------------------|------------------|-----------------|----------|
| | | younger | older |
| general symptoms and signs | +0.354** | +0.264* | +0.412* |
| psychologic findings | +0.286* | +0.124 | +0.502* |
| serum cholesterol | +0.455** | +0.174 | +0.558** |
| daily total caloric consumption | +0.425** | +0.419** | +0.336* |
| daily total carbohydrate intake | +0.528** | +0.473** | +0.652** |
| daily refined carbohydrate intake | +0.520** | +0.442** | +0.669** |
| SGOT [preliminary report] | +0.215 | -0.023 | +0.686** |
| SGOT [final report] | +0.338** | +0.362** | +0.318** |
| LDH [preliminary report] | +0.892** | +0.937** | +0.877** |
| LDH [final report] | +0.896** | +0.948** | +0.840** |
| CPK | +0.762** | +0.714** | +0.806** |
| SGPT | +0.185* | +0.290* | +0.085 |

*P <0.05

**P <0.01

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of the clinical findings [1-3], biochemical observations [4,5], earlier and final serum glutamic oxalacetic transaminase [6,8], earlier and final lactic dehydrogenase studies [7,9], creatine phosphokinase [10], and dietary patterns [11-13]. It is noteworthy that, of all of the familial parameters studied, the correlation coefficient for SGPT is one of the lowest.

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