

A PERIODIC FLUCTUATION IN THE FALSE ANTI-HIV-1 REACTIVITY OF BLOOD DONORS' SERA - A WORLDWIDE PHENOMENON?

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During my sabbatical leave in Australia I registered the monthly numbers of all sera investigated by ELISA for anti-HIV-1 antibody (N) of initially (IR) and repeatedly (RR) reactive sera of healthy blood donors from the Brisbane blood bank between July 1985 and November 1987. These data have been later extended up to June 1989, giving a total of 613 307 investigated sera. The cosinor analysis of the first part of Brisbane data (N = 354 289) revealed for RR/N (and RR/IR) a significant ($\alpha = 0.05$) rhythm with the period length $T = 15$ months (2). For the IR/N ratio, three significant periodic components ($T_1 = 12$, $T_2 = 6$, and $T_3 = 4$ months) have been identified.

To verify these phenomena, I asked for that sort of data from blood banks throughout the world. Those sent to me from Groningen (The Netherlands, May 1987-February 1989, N = 106 566) showed similar significant rhythmic components only with shorter T value for RR/N and RR/IR, i. e. 8 - 9 months (3). The same holds for the data from Aichi (Japan, April 1988, March 1989, N = 346 638) (4). Similar tendencies have been observed in Czechoslovakia: for RR/N significant rhythms have been found in Banská Bystrica (Middle Slovakia, January 1987-October 1988, N = 86 040) (5) with $T_1 = 3$ and $T_2 = 15$ months and in Košice (East Slovakia, January 1987-February 1989, N = 99 813) (6) with $T = 11$ months. A similar phenomenon (approximate $T = 12$ months) can be seen in the figure obtained from more than 13 000 000 data collected in the U. S. A. (7).

The graphical plot of the RR/N ratio during the time for all geographical areas displays its general decline with more or less conspicuous peaks. The general decline can be explained by successively increased specificity of ELISA tests. This, however, hardly holds for the peaks, culminating in U. S. A. in September 1985 and October 1986, in Brisbane in August 1985, August 1986, and December 1988, in Banská Bystrica and Košice in August 1988, and in Groningen and Aichi in November 1988. For better clarity, the data from all geographical areas have been pooled to display the RR/N ratios for each month. In conclusion, all peaks, even those in the southern hemisphere, appeared between August and December. Continuing extension of RR/N data over the globe as well as epidemiological and serological studies could elucidate the mechanism of the false anti-HIV-1 reactivity.

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