DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
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BETHESDA, MARYLAND 20014

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Correspondence

Ancel - comments?
Howard - comments?
Stamler -

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Dear Henry:

In connection with the possible distribution by the AHA of a selection of tables from Appendix B of the Framingham Monograph No 27, Manning has mentioned your misgivings about the LVH-ECG split included in the tables. As he understands it, you feel that LVH-ECG has nothing to do with the matter: what is really the magic ingredient are the T and ST abnormalities in LVH-ECG as read by the Framingham staff.

(1.) While it is true that 97.4% of the "definite" LVH-ECG tracings at Framingham had ST and T wave abnormalities, 94.8% fulfilled the criteria of Sokolow and Lyon, 94.8% fulfilled the criteria of Gubner and Ungerleider and 98.3% fulfilled the criteria of Katz. Additional information from an evaluation of criteria is given in our article in the Annals of Internal Medicine (72:815, 1970). Thus what is read as LVH-ECG by Framingham appears to be well within the clinical concensus.

(2.) It seems to me that it is a second order question whether the magic ingredient predicting CHD is the T, ST or voltage abnormalities in LVH-ECG, so long as usual reading practices would identify the same kind of electrocardiographic patterns. In point of fact unpublished analyses of ours suggest that the CHD predictor for men is primarily the component of T-wave abnormality and the CHD predictor in women is primarily the component of voltage abnormality. Without denigrating the importance of such issues I do not see how they attenuate the usefulness of reading the ECG for LVH. In point of fact non-specific T-wave abnormalities per se do not make a significant additional contribution to the prediction of CHD in Framingham (Table 10, page 28 of section 27), either in men or women. Granted that the picture might be altered if minor T-wave abnormalities were excluded from this category I cannot see that it is necessary to look at such questions from only one viewpoint.

(3.) I cannot believe that it is open to argument that hypertension accompanied by LVH-ECG is a grave finding even without consideration of the risk of CHD. From that point of view anything that encourages a physician to look for this combination is to the potential benefit of his patient. If the physician finds this combination and is moved to appropriate prophylactic measures I think it of little moment from the point of view of medical practice whether this is really designed to prevent death or disability from hypertensive heart disease or death or disability from coronary heart disease. I would make this point even if we were the NCHDLI but in point of fact we are the NHLI and so we do have an institutional interest in both outcomes.

With respect to the tables in Appendix B of section 27 I think I ought to repeat a few practical points, most of which are already made in section 27.

(1.) First of all, the tables cannot be collapsed. They must either be used as they are or they cannot be used at all. This does not necessarily mean that all the measurements must be made in order to use the tables for getting a rough idea of relative risks but <u>any</u> multivariate analysis is specific to the exact set of variables used. That means that to use the table properly the person must have a blood pressure measurement, a serum cholesterol determination, a casual blood glucose determination, a casual urine glucose determination, a smoking history and an electrocardiogram. Obviously different persons would prefer to add or subtract from this set. We were focussing on our set of common risk factors and that is our reason for the table. It seems to me that the question is not whether these tables are ideal or universal but whether they are useful.

(2.) These tables are appropriate only for a general population free of CHD (definite AP, definite MI, questionable MI by ECG). They are probably relevant to persons treated by general physicians. They are probably not relevant to patients seen by cardiologists.

(3.) The methods of measurement can make a non-trivial difference in interpreting results. This is, of course, true of any table of medical standards. Differences in blood pressure measurement, serum cholesterol, etc. can make substantial differences in the meaning of your findings. In that respect arguments respecting criteria for LVH-ECG are really too narrow.

(4.) Obviously, the estimates from Framingham have considerable sampling error. There is reason to believe that they are generally or approximately correct for American populations but they did not come down from Mt. Sinai. Again the question is, are they good enough to be useful.

Best regards.

Sincerely yours,

Tavia Gordon
Supervisory Statistician
Biometrics Research Branch
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cc: Dr. Kannel