LETTERS TO THE EDITOR

Scope

Heart welcomes letters commenting on papers published in the journal in the previous six months. Topics not related to papers published earlier in the journal may be introduced as a letter: letters reporting original data may be sent for peer review.

Presentation

Letters should be:
- not more than 600 words and six references in length
- typed in double spacing (fax copies and paper cut only)
- signed by all authors

They may contain short tables or a small figure. Please send a copy of your letter on disk. Full instructions to authors appear in the January 1999 issue of Heart (page 104).

Heart rate variability and cardiac failure

EDITOR,—We read the recent important editorial by Lombardi and Mortara with interest, and we would like to comment on several points raised.

As the authors state, spectral analysis of short term recordings of heart rate variability (HRV) is of limited value in patients with cardiac failure. Long term recordings in patients with cardiac failure contain a large amount of noise, artefact, ectopic activity, and non-stationary heart rate fluctuations, and spectral measurements are unreliable under these circumstances. We believe that studies of HRV in patients with cardiac failure are most reliable when confined to time domain techniques, which are highly reproducible in patients with cardiac disease.

The only adequately sized prospective study to evaluate time domain measures of HRV in cardiac failure is the United Kingdom heart failure evaluation and assessment of risk trial (UK-HEART) study. Lombardi and Mortara question the general applicability of these results, based on the mean ejection fraction of the patients. Our patients were required to have symptoms plus a low ejection fraction or abnormal chest x-ray. We did not exclude patients with heart failure and preserved systolic function, and this may have contributed to the relatively high mean ejection fraction. After entry into the study, ejection fraction was calculated from simple echocardiography with measurement of SDNN, which could therefore be in its negative predictive value. In UK-HEART it was confirmed that patients with “very preserved” HRV (SDNN > 100 ms) had a low annual mortality rate, whereas the few patients with “very decreased” HRV (SDNN < 50 ms) had a high risk of death.

We present our experience of the role of HRV in predicting mortality in patients. Time domain analysis of HRV on 24

Table 1  Relative risk of cardiac death according to age for a decrease in SDNN

<table>
<thead>
<tr>
<th>SDNN</th>
<th>Survivors</th>
<th>Non-survivors</th>
<th>p Value</th>
<th>RR of cardiac death (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &lt; 50 (n = 47)</td>
<td>110.5 (48.0)</td>
<td>75.9 (57.5)</td>
<td>0.009</td>
<td>1.036 (1.002-1.072)</td>
</tr>
<tr>
<td>Age &gt; 50 (n = 75)</td>
<td>96.0 (32.5)</td>
<td>79.6 (25.0)</td>
<td>0.02</td>
<td>1.027 (1.003-1.053)</td>
</tr>
</tbody>
</table>

p value based on proportional hazards model.

Risk ratios (RR) are calculated for a decrease in SDNN equal to 1 ms.
These letters were shown to the authors, who reply as follows:

We read with interest the letter by Nolan and Fox on behalf of the UK-HEART study group concerning our recent editorial.\(^1\) Whereas there is a general agreement on the interpretation of previous studies and on the limits of spectral analysis of short term recordings, these authors suggest that the results of UK-HEART\(^2\) were not adequately interpreted.

The reason for such apparent discrepancy may be the fact that the results of UK-HEART were published in full only in October 1998 and therefore well after the acceptance of our editorial. Nevertheless, we were aware of the importance of this prospective study and quoted and discussed the results on ambulant outpatients rather than those restricted to hospital. This cut off is higher than the value reported to stratify patients with a recent myocardial infarction in the post-thrombolysis era and suggests a possible significant influence of non-neural factors in the determination of HRV parameters in chronic heart failure.

Nolan et al provide interesting comments on the possible clinical utility of a high negative predictive value of preserved HRV (SDNN > 100 ms) to identify a subgroup cardial failure patients at low risk.\(^3\) Unfortu-
