LETTER TO THE EDITOR

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Regarding the editorial by Sau and Ng. 'Hypertrophic cardiomyopathy risk stratification based on clinical or dynamic electrophysiological features: two sides of the same coin'

This Letter to the Editor refers to article 'Hypertrophic cardiomyopathy risk stratification based on clinical or dynamic electrophysiological features: two sides of the same coin' by Sau A, Ng, FS https://doi.org/10.1093/europace/euad072. 'Response to the letter to the editor EUPC-D-23-00362 of Richard Saumarez', by Arunashis Sau and Fu Siong Ng, https://doi.org/10.1093/europace/euad174.

We are grateful for the editorial by Sau and Ng[1] on Saumarez *et al.*[2] but do not agree with their appraisal. The assumption in the editorial is that the ESC guidelines are accurate and should be the framework for determining electrophysiological testing (EP). Thus, they advocate substantial implantable cardioverter defibrillator (ICD) over-implantation in the high-risk group, ignore the 50% of the deaths that occur in the low-risk group and suggest EP in a subgroup of 'medium-risk' patients with mortality shown to be less than 2%.[3]

The original[4] and validation studies[3] that underpin the ESC method have a C-index (equivalent to Area Under the Curve) of 0.7, which is accepted as the lower margin of predictive usefulness. Saumarez *et al.*[2] confirm this low predictive capacity [39/78 sudden cardiac death (SCD) patients detected with up to 620 non-SCD false positives]. The fallacy behind the current assertion that high, medium, and low risk groups exist is that they are drawn from different populations, with different risk profiles. Since these groups were constructed by regression, the reality is a continuum of risk. These arbitrary groups have large confidence limits when re-validated.[3] Due to this poor discrimination and wide limits in the groups, in the validation study,[3] the supposedly medium risk group (4–6%/5 years mortality) had a risk of <2%. Therefore, investigation of this group alone, as recommended, does not improve overall risk stratification.

The editorial recommends universal implantation in the ESC high-risk group (>6%/5 years) but the (non-implanted) *10-year* mortality in this group is 17% (11–24%) indicating that the majority of these implantations are unnecessary. Given the expense and lifetime disruption of having an ICD, the logic of not using EP in this group escapes us as this might eliminate ~60% of unnecessary implantations.

Fifty percent of deaths will occur in the 'low risk'[2] group and the ESC guidelines *deliberately* fails to protect these patients. The low-risk group is defined as having a 5-year mortality of up to 4% (mean 2.7%). This results in a high risk ratio when compared with average death rates (see *Table 1*[5]) and would be unacceptable in other branches of medicine.

Any ICD strategy requires robust statistics and formal prospective testing. To allow physicians to make informed decisions, the predictions in terms of missed SCD and ICD implantations must be stated explicitly. This editorial does not adhere to these standards.

A young hypertrophic cardiomyopathy (HCM) patient, who survives ventricular fibrillation due to an ICD, has a relatively long life expectancy as opposed to, say, an elderly patient undergoing a ventricular tachycardia ablation whereby their outlook is determined by their age and heart failure. Were some of these electrophysiological resources re-directed to the development and availability of EP in HCM and the prevention of SCD in the relatively small number of HCM patients, a substantial increase in quality-adjusted life years may be achievable. While this is an ethical question, it should not be dismissed on the grounds of perceived impracticality, a spurious consensus or reluctance to challenge current dogma.

Table 1 Table of general population and predicted mortalities of HCM low risk group

Age	Deaths/ year/1000[5]	5 year % mortality	4% risk ratio	2.7% risk ratio
15–19	0.2	0.10	40	27
20–24	0.4	0.20	20	14
25–29	0.4	0.20	20	14
30–34	0.6	0.30	13	9
35–39	0.9	0.45	9	6
40–44	1.4	0.70	6	4

Conflict of interest: None declared.

References

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