

PostScript

LETTERS

Culture negative endocarditis: data from the national survey in Slovakia

Millar *et al* in their interesting review discussed culture negative endocarditis.¹ The mainstay of diagnosis of infective endocarditis is still conventional blood culture; however, blood culture may be negative in 1%–79% of all cases. The incidence of culture negative endocarditis has been increasing. This could be for a number of reasons. Prosthetic heart valves are prone to infection and in many of these cases the culture is negative. Many aetiological agents causing infective endocarditis may be fastidious in nature, such as the HACEK group of organisms² or unusual and require specialised microbiological techniques.

Within our national survey of 180 cases in Slovakia,³ culture negative endocarditis appeared in 35 cases (19.5%), which is higher than that reported in the Netherlands (1%), the USA (5%), Sweden (12%), the UK (15%), France (18%), but lower than in Russia (26%) and Spain (37%–43%) and much lower than in India (53%–79%).

In univariate analysis comparing all cases (180) to culture negative (35 cases), prior cardiac surgery within two weeks ($p < 0.045$), probable endocarditis ($p < 0.04$) according to Duke's criteria,⁴ and emboli ($p < 0.001$) were more frequently observed among the group

with culture negative endocarditis, and prior dental surgery ($p < 0.03$) and a definitive diagnosis ($p < 0.045$) among all cases of endocarditis (see table 1). In addition multivariate analysis (STAT ADV computerised package of the postgraduate medical school) was performed. The only significant risk factor for culture negative endocarditis in multivariate analysis was presence of complications. The odds ratio was 2.45 (confidence interval 0.95 to 2.35) in the group with culture negative endocarditis, which was 2.45 times higher than in culture positive endocarditis.

Interestingly mortality was lower in culture negative endocarditis than among all cases (24.5% *v* 44.4%, $p < 0.001$). Millar *et al* in his excellent review analysed reasons for culture negative endocarditis. We found according to our experience one more risk factor—prior cardiac surgery. Probably, those undergoing cardiac surgery and receiving antibiotic prophylaxis (first generation cephalosporins/cefazolin in Slovakia) have lower death rates in endocarditis due to protective effect of antimicrobials for occurrence of infection.

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References

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- 3 Hricak V and the Endocarditis Study Group. *J Public Health* 1998;7(4):3–15.
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Ethical, professional, and legal obligations in clinical practice

We wish to applaud Mr Gore on conducting sessions and writing about ethical, professional, and legal obligations in clinical practice.^{1–3} It is an area in which most doctors fail to get training at an earlier stage, and there is a case for other specialties to take heed from Gore's series and conduct such educational exercises in their hospitals.

We agree with Gore that doctors tend to underestimate how willing people are to talk about their own death³ and, in fact, their resuscitation status. As doctors we tend to assume that this discussion with patients (where feasible) would upset them enormously and hence the reluctance to discuss it with them.

To find an answer to this dilemma, we conducted an interview based study in our district general hospital, where 70 inpatients on medical wards were interviewed to assess their knowledge of cardiopulmonary resuscitation and their views on getting involved in their “not for resuscitation” (NFR) decision. The group had equal number of male and female patients and equal number of patients below and above the age of 70 years. The results were very interesting and showed that majority (~71%) of the hospital inpatients wished to get involved in the discussion related to their NFR decision. This view was similar among young and old patients. This sends a strong message that ethically we ought to involve mentally competent patients in their NFR decisions if the latter so wish.

We disagree with Gore that resuscitation be offered if it is specifically requested by a patient even if a successful resuscitation is unlikely.³ In patients in whom cardiopulmonary arrest clearly represents a terminal event in their illness, attempted resuscitation might be considered inappropriate. Neither patients nor their relatives can demand treatment that the health care team judges to be inappropriate.⁴ There are situations where medical reality and patient's expectations in relation to their illness and NFR decisions do not match.⁵ In situations like these the healthcare team has the moral and legal responsibility to help their patients reach a decision in their best interest.

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- 1 Gore DM. Ethical, professional, and legal obligations in clinical practice: a series of discussion topics for postgraduate medical education. Introduction and topic 1: informed consent. *Postgrad Med J* 2001;77:238–9.

Table 1 Comparison of all cases with those with culture negative endocarditis (CNE); values are number (%)

| | All cases (n=180) | CNE (n=35) | Univariate analysis | Multivariate analysis |
|--|-------------------|------------|---------------------|-----------------------|
| Risk factors | | | | |
| Age less than 60 | 46 (25) | 11 (31) | NS | NS |
| Male gender | 125 (69.4) | 20 (57) | NS | NS |
| Rheumatic fever | 64 (35) | 11 (31) | NS | NS |
| Malignancy | 12 (6.7) | 2 (5.7) | NS | NS |
| Diabetes mellitus | 11 (6.1) | 3 (9.8) | NS | NS |
| Intravenous drug use | 2 (1.1) | 0 | NS | NS |
| Prior cardiac surgery | 14 (7.8) | 5 (14.3) | 0.045 | NS |
| Prior endoscopy | 8 (4.4) | 1 (2.9) | NS | NS |
| Dialysis | 8 (4.4) | 2 (5.7) | NS | NS |
| Central venous catheter | 6 (3.3) | 3 (9.8) | NS | NS |
| Dental surgery <96 | 37 (20.5) | 3 (9.8) | 0.03 | NS |
| Tonsillitis or sinusitis <96 | 15 (8.3) | 2 (5.7) | NS | NS |
| Duke's criteria and localisation | | | | |
| Definitive diagnosis | 169 (93.9) | 27 (78) | 0.045 | NS |
| Probable diagnosis | 21 (11.6) | 8 (23) | 0.045 | NS |
| Aortic damage | 84 (46.7) | 18 (52) | NS | NS |
| Mitral damage | 85 (47.2) | 14 (40) | NS | NS |
| Complications (embolus, heart attack, haemorrhage) | 36 (20.0) | 17 (48) | 0.001 | 0.024 OR 3.05 |
| Right ventricular failure | 11 (6.1) | 3 (9.8) | NS | NS |
| Immunological phenomena | 116 (64.4) | 21 (60) | NS | NS |
| Treatment | | | | |
| Antibiotic only | 120 (66.7) | 20 (57) | NS | NS |
| Antibiotic plus surgery | 60 (33.3) | 15 (43) | NS | NS |
| Antibiotic <21 days with surgery | 35 (19.5) | 7 (20) | NS | NS |
| Antibiotic <21 days without surgery | 31 (17.2) | 5 (14) | NS | NS |
| Outcome: death due to infection | 40 (44.4) | 9 (24.5) | 0.001 | NS |

OR, odds ratio.