

# PostScript

## LETTERS

### Culture negative endocarditis: data from the national survey in Slovakia

Millar *et al* in their interesting review discussed culture negative endocarditis.<sup>1</sup> 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 organisms<sup>2</sup> or unusual and require specialised microbiological techniques.

Within our national survey of 180 cases in Slovakia,<sup>3</sup> 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,<sup>4</sup> 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

- 1 Millar BC, Altwegg M, Raoult D, *et al*. Culture negative endocarditis—causes, diagnosis and treatment. *Rev Med Microbiol* 2000;11:59–75.

- 2 Berbari EF, Cockerill FR, Steckelberg JM. Infective endocarditis due to unusual or fastidious organisms. *Mayo Clin Proc* 1997;3:532–42.
- 3 Hracak V and the Endocarditis Study Group. *J Public Health* 1998;7(4):3–15.
- 4 Durac DT, Lukes AS, Bright DK and the Duke Endocarditis Service. New criteria for diagnosis of infective endocarditis: utilisation of specific echocardiographic findings. *Am J Med* 1994;96:200–9.

### 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.<sup>1–3</sup> 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 death<sup>1</sup> 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.<sup>3</sup> 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.<sup>4</sup> There are situations where medical reality and patient's expectations in relation to their illness and NFR decisions do not match.<sup>5</sup> 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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### References

- 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
<b>Risk factors</b>				
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)	(24.5)	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
<b>Duke's criteria and localisation</b>				
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
<b>Treatment</b>				
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.

- 2 **Gore DM.** Ethical, professional, and legal obligations in clinical practice: a series of discussion topics for postgraduate medical education. Topic 2: consent and legal competence. *Postgrad Med J* 2001;**77**:318–19.
- 3 **Gore DM.** Ethical, professional, and legal obligations in clinical practice: a series of discussion topics for postgraduate medical education. Topic 3: resuscitation decisions in adult patients. *Postgrad Med J* 2001;**77**:388–9.
- 4 **Mayor S.** New UK guidelines on resuscitation call for open decision making. *BMJ* 2001;**322**:509.
- 5 **Jones GK, Brewer KL, Garrison HG.** Public expectations of survival following cardiopulmonary resuscitation. *Acad Emerg Med* 2000;**7**:48–53.

### Author's reply

I welcome the comments of Dr Jain and his colleagues. The apposite study which they conducted at Wrexham Maelor Hospital demonstrates the desire among patients, young and old, for involvement in NFR decisions. As doctors we must confront our own unease at discussing matters of resuscitation and death with patients.

I accept the authors' reservations about my endorsement of compliance with a patient's wish for cardiopulmonary resuscitation in all cases. In many such cases cardiopulmonary resuscitation would be medically inappropriate, and it is indeed the responsibility of the healthcare team to counsel the patient accordingly. Nevertheless the series of discussion articles was geared towards education for junior medical staff, and I chose to keep the guidelines straightforward with an emphasis on patient autonomy. Certainly in any such situation one would expect a more senior member of the healthcare team to identify and address that mismatch between medical reality and patient/relative expectation. Counselling might then be offered in the hope of reaching consensus on the suitability of a NFR decision.

### Intraoperative glove perforation

We read with interest the paper by Thomas *et al* concerning single versus double gloving in protection against intraoperative skin contamination from glove perforation.<sup>1</sup> We note that one of the methods used to detect glove perforation was the water leak method. Although we accept that the water leak test is an acceptable method we believe that it is not as sensitive as the electrical conductance test as demonstrated by Sohn *et al*.<sup>2</sup>

Interim results from an ongoing study yielded 211 sterile and non-sterile gloves used during venepuncture or wound closure in our emergency department. We identified nine glove perforations with the water leak test and 22 with the electrical conductance test. All water leak positives were also electrical conductance test positive. This study supports the work by Sohn *et al*. We believe that Thomas, Agarwal, and Metha may have underestimated the incidence of glove perforation in their study group.

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### References

- 1 **Thomas S, Agarwal M, Metha G.** Intraoperative glove perforation- single versus double gloving in protection against skin contamination. *Postgrad Med J* 2001;**77**:458–460.
- 2 **Sohn RL, Murray MT, Franko A, et al.** Detection of surgical glove integrity. *Am Surg* 2000;**66**:302–6.

### Authors' reply

The water load test, as per the criteria established by the American Society for Testing and Materials, is one of the methods approved by law for testing integrity of latex gloves. Recent studies have shown that the electrical conductance test has a higher sensitivity than the water load test in detecting

smaller glove perforations. The study by Sohn *et al* cited by McLaughlin and colleagues also shows similar findings,<sup>1</sup> although the number of patients testing false negative with the electrical conductance test has not been mentioned.

Both these tests, however, have an inherent disadvantage as they overdistend the gloves, thus negating the viscoelastic, self sealing properties of latex and aggravating the potential permeability to fluid/electrical impulses. It may be more appropriate if these tests are conducted with the gloves distended with liquid only up to the appropriate size; the significance of the glove perforation can then be assessed by the number of bacteria/quantity of water that can pass through the perforation in a fixed period of time.

In the ongoing study described by McLaughlin *et al*, there were 22 perforations in 211 gloves used in minor surgical procedures, indicating that one in five minor surgical procedures will result in perforated gloves (one pair of gloves for each procedure). This emphasises the point made by our article that even in minor surgical procedures, single gloving alone will not provide adequate protection.

### Reference

- 1 **Sohn RL, Murray MT, Franko A, et al.** Detection of surgical glove integrity. *Am Surg* 2000;**66**:302–6.

## CORRECTION

### Cor pulmonale: variation on a theme

We regret that an error occurred in the above paper by Jolobe, Schlayer, and Yates (*Postgrad Med J* 2001;**77**:665, 675–7). The final diagnosis should have read "Cor pulmonale resulting from pulmonary tumour embolism".