TICO (Thrombolysis in Coronary Occlusion)
 TIMAD (Ticlopidine in Micro-Angiopathy of Diabetes)
 TIMI (Thrombolysis in Myocardial Infarction)
 TIPE (Thrombolysis in Pulmonary Embolism Study)
 TIPE (Thrombolysis in Peripheral Embolism Patient Study)
 TOHMS (Trial of Hypertensive Medications Study)
 TOHP (Trials of Hypertension Prevention)
 TOMHS (Treatment of Mild Hypertension Study)
 TOP (Thrombolysis in Old Patients)
 TPAT (Tissue Plasminogen Activator, Toronto)
 TPT (Thrombosis Prevention Trial)
 TRENT (Trial of Early Nifedipine Treatment in Acute Myocardial Infarction)

TRUST (Trial of United Kingdom for Stroke Treatment)
 UNASEM (Unstable Angina Study Using Eminase)
 UNSA (Unstable Angina Study)
 UPET (Urokinase Pulmonary Embolism Trial)
 URALMI (Urokinase and Alteplase in Myocardial Infarction)
 USIM (Urokinasi per via Sistemica nell'Infarto Miocardico)
 VACA Registry (Valvuloplasty and Angioplasty of Congenital Anomalies Registry)
 V-HeFT (Veterans Heart Failure Trial)
 WARIS (Warfarin Reinfarction Study)
 WHA Study (Worcester Heart Attack Study)
 WWICT (Western Washington Intracoronary Streptokinase Trial)
 WWIST (Western Washington Intravenous Streptokinase Trial)

Monitoring myocardial damage in cardiac surgery by troponin T detection

SIR,—Perioperative myocardial injury remains the most common cause of death in cardiac surgery. The need for new diagnostic criteria to assess the comparative efficacy of different myocardial protection techniques prompted us to identify reliable markers of myocardial necrosis. Katus *et al* reported that the serum concentration troponin T, a cardiospecific protein, reliably detects myocardial cell necrosis in patients undergoing myocardial revascularisation.¹ We assayed troponin T (ELISA, Troponin T, Boehringer Mannheim) in 40 consecutive patients of whom 34 underwent coronary artery bypass grafting (CABG), four mitral valve replacement (MVR), and two aortic valve replacement (AVR). Myocardial protection was accomplished by antegrade-retrograde blood cardioplegia according to the method described by Buckberg.² No perioperative deaths occurred. Using the same electrocardiographic (ECG) criteria for perioperative myocardial infarction described by Katus *et al* we found two cases among the CABG patients and one among the AVR patients. Troponin T concentrations were lower than 0.1 µg/l in all preoperative samples and rose after surgery in the three patients with perioperative myocardial infarction to a peak value of 6.06 µg/l, 11.67 µg/l, and 28.75 µg/l respectively. These results accord with those of Katus *et al* who reported a troponin T median peak value of 11 µg/l (range 6–31 µg/l) in patients in whom ECG signs of perioperative myocardial infarction developed after CABG. In patients with no evidence of myocardial infarction after surgery troponin T release was significantly lower (mean (SD) 0.96 (0.98) µg/l, median 0.68 µg/l, range 0.26–4.6 µg/l) than that in patients with perioperative myocardial infarction. Surprisingly, these values were also lower than that reported by Katus *et al* in a similar subgroup (median 5 µg/l, range 1.3–11 µg/l) who were cardioprotected by a Bretschneider HTK cardioplegic solution.³ Because there were no apparent differences in the duration of cardiopulmonary bypass and aortic cross-clamping or the number of diseased and grafted coronary vessels we suggest that the reduced troponin T release seen in our patients was due to the different myocardial protection protocol. Therefore troponin T seems to be a highly specific and sensitive marker for myocardial cell necro-

sis, that is also useful for assessing the efficiency of myocardial protection techniques.

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- 1 Katus HA, Schoepenthan M, Tanzeem A, Bauer HG, Saggau W, Diederich KW, *et al*. Non-invasive assessment of perioperative myocardial cell damage by circulating cardiac troponin T. *Br Heart J* 1991;65: 259–64.
- 2 Buckberg GD. Antegrade-retrograde blood cardioplegia to ensure cardioplegic distribution: operative techniques and objectives. *J Card Surg* 1989;4:216–38.
- 3 Gebhard MM, Bretschneider HJ, Gersing E, Preusse CJ, Schnabel PA, Ulbricht LJ. Calcium-free cardioplegia. *Eur Heart J* 1983;4:151–60.

BRITISH CARDIAC SOCIETY NEWSLETTER

The challenges that lie ahead in staffing cardiac units into the twenty first century, which were the subject of a meeting last November, require continuous debate. Both the Specialist Advisory Committee and the Manpower and Training Committee are developing strategies to improve our training programmes and ensure that staffing levels are appropriate.

The working party on cardiology in district general hospitals, chaired by Andrew McLeod, is contributing to this debate. All the indications are that nearly double the number of consultants will be required over the next decade and it remains to be seen how the funding will be provided. The formal government response to the Calman report after a period of consultation is awaited and will no doubt precipitate vigorous debate. Harmonising our training programmes with the rest of Europe is not going to be easy and cannot be achieved overnight.

The Specialist Advisory Committee is reviewing the content of training, which will

become more structured with formal guidelines and a formal assessment of training of trainees being introduced.

Archives

Arthur Holman, who was appointed by Council, writes: "The main task of the archivist is the preservation and proper arrangement of the Society's records. These will include: minutes of Council meetings; financial accounts; minutes of annual general meetings; records of the scientific meetings and programme books; membership records; minutes of Officers' meetings; records and meetings of associated groups; and correspondence. Advice is being sought from a professional archivist on how these records should be kept and indexed, with special reference to computer management.

Our important need to have a complete set of the *British Heart Journal* from its foundation in 1939 has been met by a most welcome gift from Richard Emanuel. He has given us the bound volumes of the journal that belonged to his father, Professor J G Emanuel, and we are deeply grateful to him for his generosity. We now have to obtain a set of *Cardiovascular Research*.

In addition, I intend to establish a small library of books that will cover the development of cardiology from the mid-nineteenth century to the present day. If possible we would also like to have a small collection of historical instruments both diagnostic and therapeutic—for example, the Mackenzie polygraph and the mitral valve dilator.

If members have books, instruments, or other items of historical interest that they would like to donate to the Society I will be most grateful if they will get in touch with me either at the Society's office or at my home: Seabank, Chick Hill, Pett, Hastings, East Sussex TN35 4EQ (tel: 0424 813228)."

Data Management Committee:

progress on the Read Clinical Terms

Malcolm Towers writes: "Our lists of diagnostic (clinical) terms in congenital heart disease and "adult" heart disease and terms for special investigations—such as electrocardiography, electrophysiology, and nuclear cardiology—have been completed. The list of terms for echocardiography is almost complete. The Centre for Coding and Classification now has the