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Authors' reply

EDITOR,—We excluded patients with hypertension or diabetes from our study. None of our patients had clinical or electrocardiographic evidence of cardiovascular disease, including intermittent claudication. Ten of the 22 patients were current smokers. Their ratio of albumin to creatinine concentrations was higher than that in the non-smokers (mean (SD) 14·4 (1·8) compared with 9·4 (1·8)), but the difference was not significant ($p=0·06$, unpaired t test).

Though we excluded overt cardiovascular disease, we cannot be certain that our patients did not have a greater degree of occult cardiovascular disease than the controls. This might be a factor in their higher urinary albumin excretion.

The urine specimens were random daytime midstream samples in both the patients and the controls, and no particular posture was imposed. Neither the patients nor the controls exercised.

Paul Martin and colleagues seem to imply that our findings suggest renal tubular disease. If that was the case we would have expected lysozyme and glucose to be detected in the urine. We are interested that a study that they cite found that smoking was not related to microalbuminuria in both diabetic and healthy people. Our findings were similar, though in our case the lack of a significant difference could well be a type II error.

J S MILLEDGE
M J LANDON

Northwick Park Hospital,
Harrow,
Middlesex HA1 3UJ

Spinal cord stimulation and coronary ischaemia

EDITOR,—C Mannheimer and colleagues conclude that spinal cord stimulation has an anti-ischaemic effect in patients with angina pectoris and that this is probably mediated by a reduction in myocardial oxygen consumption rather than an increase in coronary blood flow.[1] We recently showed, however, that transcutaneous electric nerve stimulation can increase coronary blood flow.[2] We measured coronary blood flow velocity with a Doppler catheter positioned at the left coronary ostium before and after five minutes of neurostimulation. The resting coronary blood flow velocity increased significantly from 6·8 (SD 4·1) cm/s to 10·5 (5·7) cm/s ($p<0·001$). That this occurred in the absence of any significant changes in the diameters of epicardial coronary arteries suggests that the mechanism of action is at the microcirculatory level.

Mannheimer and colleagues quote an earlier study that showed that no significant changes in regional myocardial perfusion occurred on neurostimulation, as measured by positron emission tomography with potassium-38 during exercise.[3] The same study also showed, however, that the regional myocardial perfusion increased significantly on exercise in the segments of the myocardium supplied by normal coronary arteries. The importance of this was said to be unclear as it was associated with an increase in heart rate. We note that although the heart rate at rest increased on neurostimulation in the authors' present study, this was associated with a decrease in coronary sinus blood flow. We appreciate that the authors' findings may be a result of a differential effect of neurostimulation on diseased vascular beds as opposed to normal circulation. However, might the authors have failed to observe an increase in coronary blood flow owing to the well known limitations of the technique of measuring blood flow by coronary sinus thermodilution?[4] Phasic coronary flow or rapid changes in mean flow cannot be assessed by this technique because the time constant of the technique is too slow. Also, there have been no convincing animal or clinical validation studies to document the accuracy of coronary flow measurements with the thermodilution technique in patients with appreciable coronary artery disease.

ANOOP CHAUHAN
MICHAEL C PETCH
PETER M SCHOFIELD

Regional Cardiac Unit,
Papworth Hospital,
Cambridge CB3 8RE

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Pass rate in MRCGP examination

Depends on selection of candidates

EDITOR,—Richard Wakeford and colleagues' paper on the pass rate in the membership examination of the Royal College of General Practitioners (MRCGP examination) by postgraduate training region[1] is meaningless because of the large variations in the proportions of eligible candidates taking the examination from each region. The MRCGP examination has a built in failure rate of 25%,[2] so the regions that encourage all their trainees to sit it will appear unfavourably in comparison with regions that select their candidates.

In Wakeford and colleagues' study the highest number of candidates comes from the west of Scotland (271). When this figure is compared with those for the regions in England and Wales it is 14% higher than the second largest (figure) (238) and over three times the smallest (84). In this situation a national peer referenced examination does not allow valid comparisons between regions; doubts must also be cast on the comparisons by medical school. This is particularly true for Glasgow University, where a large proportion of the graduates take up trainee posts in the west of Scotland.

We suggest that a more valid comparison is the proportion of successful trainees among those eligible to sit the examination. This figure is unknown, but the nearest proxy is the number of successful candidates in each region as a proportion of those completing training (as measured by the issue of certificates of satisfactory completion of training from the Joint Committee for Postgraduate Training in General Practice; this is the legal requirement for becoming a principal in general practice). The table shows this information.[3] There is a considerable difference in the rank order of the regions compared with that in Wakeford and colleagues' study, our region, west of Scotland, moving from bottom in Wakeford and colleagues' study to second top. We were surprised that the authors did not use these data: they refer to them in their paper but say that they are unsatisfactory without giving an explanation. Their use, however, would have invalidated the conclusions presented. The results presented were misleading, and we regret that the data were not subjected to a thorough analysis.

Number of certificates of satisfactory completion of training issued and number of doctors passing MRCGP examination among those completing vocational training in the regions of similar size, 1989-92

Region	Certificates issued	No (%) passing MRCGP exam
Northern	266	214 (80)
West of Scotland	342	233 (68)
North Western	378	245 (65)
South Western	427	258 (60)
East Anglia	221	130 (59)
Oxford	227	132 (58)
Trent	385	211 (55)
North West Thames	281	153 (54)
Yorkshire	313	147 (47)
Wessex	345	158 (46)
South West Thames	329	141 (43)
Wales	407	172 (42)
Mersey	269	99 (37)
South East Thames	338	122 (36)
North East Thames	328	114 (35)
West Midlands	427	148 (35)

Vocational training in the west of Scotland is constantly evaluated.[4] The region will continue to strive to provide the highest quality in its training programmes and innovate when appropriate.[5]

T STUART MURRAY
NORMAN MACKAY
L MALCOLM CAMPBELL

West of Scotland Committee for
Postgraduate Medical Education,
University of Glasgow,
Glasgow G12 8QQ

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League table unscientific and illogical

EDITOR,—Richard Wakeford and colleagues have created a league table of the pass rate in the membership examination of the Royal College of General Practitioners (MRCGP) by region of vocational training.[1] They push statistical credibility too far, however, when they apply the same logic to the creation of a league table of the pass rate by medical school of origin: for students to pass the MRCGP examination is not an aim of undergraduate medical education. The authors' statistics show this flawed logic, but the authors' inferences about the relevance of these findings to future expansion of undergraduate education are not scientific.

H L A HOUSTON
N C H STOTT
L M TAPPER-JONES
C WILKINSON
P A OWEN
S A SMAIL

Department of General Practice,
University of Wales College of Medicine,
Health Centre,
Cardiff CF3 7PN

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