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Academic boycotts of South Africans

SIR,—The executive committee of the Society of Psychiatrists of South Africa is a subgroup of the Medical Association of South Africa. Both are non-partisan and non-racial professional organisations committed to maintaining professional and ethical standards.

The executive committee considers it necessary to make its position clear in respect of recent events in South Africa. Some of these events are associated with challenges to apartheid and the state's reaction to these but others are associated with Third World problems and the socioeconomic consequences of rapid urbanisation. The situation is complex.

We have openly criticised those aspects of recent events that have impinged on psychiatry; to this end we have made statements and written letters to the medical press on matters of legitimate medical concern despite restrictions due to the emergency regulations.

It must be recognised, however, that the psychiatrists of South Africa do not have a powerful voice. The situation is different in some overseas countries, where professional organisations can bring considerable moral pressure to bear on the authorities. Nevertheless, many of our psychiatrists work in state institutions (with no private practice) and in these contexts have been able considerably to improve services and standards of care for all, but particularly for black and disadvantaged patients. In particular, we have alerted the authorities to shortcomings and inequalities and helped in a more equitable distribution of scarce resources. In addition the training of psychiatrists and paramedical staff of all ethnic groups has been actively promoted.

It must also be recognised that many of the current problems in South Africa are beyond the realm of mental health while nevertheless affecting it and certainly beyond the competence of psychiatrists to prevent. A large part of the population is subject to enormous Third World problems such as poverty, rapid urbanisation, huge housing backlog, inadequate educational and vocational preparation, lack of family planning, etc. It is estimated that 66% of the population is currently living in urban areas (1985) and this will increase to 83% by the year 2000, while the total population will increase considerably over the same period.

It must also be understood that there are fewer than 200 psychiatrists for a population exceeding 30 million and that we have heavy clinical and administrative responsibilities. Many colleagues have joined the brain drain to advanced Western countries; those who have stayed continue with

concerned and dedicated work under difficult circumstances.

We, the psychiatrists of South Africa, seek the support and help of colleagues overseas. We need encouragement in our everyday professional tasks, in fighting those inequalities and iniquities which arise out of both the socioeconomic and the political situation, and in expanding our psychiatric services. We could profit from the skill of academic colleagues in Western countries who may have a fresh approach to our problems. We also require practical help in the shape of energetic psychiatrists from overseas who are prepared to work in rural and underprivileged areas and face the challenges of developing appropriate psychiatric services for the Third World.

Unfortunately many overseas colleagues have decided to boycott South African conferences or have made it difficult for South Africans to attend conferences abroad. We believe such boycotts are unethical: in our opinion, the situation is analogous to failing to aid a colleague who requires help while resuscitating a patient. Such boycotts isolate us professionally, whereas it is precisely this contact that we need to strengthen our resolve to strive for effective change.

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Time to scrap creatinine clearance?

SIR,—Dr Roger Gabriel has argued for the retention of the creatinine clearance test (1 November, p 1119). This is in direct opposition to the view that renal function is best assessed by plasma creatinine alone, which was expressed by Payne.¹ Both measurements do indeed have their attributes and shortcomings. Yet if used in an appropriate complementary manner their individual deficiencies may to some extent be minimised.

Creatinine clearance provides an easily interpreted estimate of renal function but is poorly reproducible. The coefficient of variation of creatinine clearance measurements in well motivated adults is at least 11%.² Therefore, to be 95% confident of a change in renal function two creatinine clearance measurements must differ by

31%—that is, $2.8 \times$ coefficient of variation. The corresponding figure for plasma creatinine at the critical glomerular filtration rate quoted by Dr Gabriel of 30 to 40 ml/min (congruent with a plasma creatinine of 200 nmol/l (2.3 mg/100 ml)) is 16%. This is calculated from estimates of biological and analytical variation for plasma creatinine, which when expressed as a coefficient of variation are 4.3% and 4% respectively.³ (The analytical coefficient of variation of 2% quoted by Dr Gabriel is not easily attainable at this level of plasma creatinine.⁴) The combined imprecision in the analysis of both plasma and urine creatinine concentrations renders creatinine clearance inherently less reproducible than plasma creatinine concentration alone. Additionally, errors in urine collection are certain to occur, no matter how "foolproof" a collection procedure is devised. Therefore, changes in plasma creatinine concentrations provide an earlier indication of alterations in renal function than would simultaneous clearance measurements.

Since nomograms for predicting glomerular filtration rate and separate reference ranges for different categories of patients are either unreliable or incomplete, an approach making optimal use of both tests is suggested as follows.

A patient is initially assessed with both plasma creatinine and clearance measurements. Hence, for a particular patient a plasma creatinine value with an associated estimate of glomerular filtration rate is available. Changes in renal function may then be followed using plasma creatinine concentrations alone, or, to help interpretation, the

Notice of inadvertent duplicate publication

The *BMJ* regrets that the letter entitled "Obstetrics at the London Hospital Medical College" by Professor M A Floyer (20 September, p 759) was substantially the same as that published in the *Lancet* entitled "Obstetrics and gynaecology at the London Hospital Medical College" (20 September, p 690). Although the same letter was submitted to both journals, neither editor was informed of this.

We regret this inadvertent duplicate publication, for which the author holds sole responsibility and which is in violation of our Instructions to Authors and internationally agreed guidelines.

new glomerular filtration rate may be calculated using the direct linear relation between glomerular filtration rate and the reciprocal of the plasma creatinine.

This approach would prevent errors arising from the interpretation of the plasma creatinine value alone by the application of an inappropriate reference range but allows changes in renal function to be noticed promptly so that treatment may be started.

Recent developments in enzymatic methods for measuring plasma creatinine concentrations are claimed to offer improved reproducibility, particularly for values within the present reference range (coefficient of variation 3.3% at 67 $\mu\text{mol/l}$ (0.76 mg/100 ml)), and reduced non-specific interference from ketone bodies, antibiotics, etc. Although these methods are not yet widely used in the near future they may, in conjunction with more complete reference data, enable plasma creatinine values to be interpreted more reliably, particularly those within the present normal range.

Until then a balanced approach to assessing renal function using plasma creatinine concentrations, supplemented with clearance measurements when indicated, would be appropriate.

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SIR,—In Dr Roger Gabriel's recent review of the role of creatinine clearance in assessing renal function he argued strongly for its retention with modifications. He commented that ^{51}Cr -labelled edetic acid was a very accurate method of measuring clearance though found it expensive (£40 or more) and undesirable for routine use because of its dependence on γ irradiation. He did not mention technetium-99m-labelled diethylenetriaminepentaacetic acid (DTPA) scans, which are also widely used and correlate well (0.97 in our hands) with ^{51}Cr -edetic acid measurements. The cost of the isotope for each clearance costs about £2, though the argument about γ irradiation still applies.

In practice, DTPA scans are easy to arrange and perform, require no urine collection, and are consequently widely considered more reliable than creatinine clearance. Recently, however, we have come across several cases where falsely high estimates of the clearance have been obtained by the $^{99\text{m}}\text{Tc}$ -DTPA method. The following case history exemplifies this.

A 56 year old woman with squamous cell carcinoma of the oesophagus was treated with radiotherapy. She received 2 Gy fractions, and half an hour after each fraction she received 10 mg cisplatin intravenously in a pilot study. Before the first fraction of treatment she had a $^{99\text{m}}\text{Tc}$ -DTPA clearance of 120 ml/min and normal serum urea, creatinine, and electrolyte values. Her creatinine clearance was not measured. At the end of her treatment course her $^{99\text{m}}\text{Tc}$ -DTPA clearance was still 120 ml/min but her serum urea and creatinine concentrations had risen (to 10.4 mmol/l (62.6 mg/100 ml) and 208 $\mu\text{mol/l}$ (2.4 mg/100 ml) respectively) but creatinine clearance was only 30 ml/min. One month after the end of treatment a further $^{99\text{m}}\text{Tc}$ -DTPA clearance was 120 ml/min but the creatinine clearance was still only 36 ml/min.

Three months later she developed liver metastases and at that time the $^{99\text{m}}\text{Tc}$ -DTPA clearance was similar to the creatinine clearance: 26 ml/min and 15 ml/min respectively. The patient died shortly afterwards from her metastases. As commonly happens with cisplatin treatment, a renal tubular leak developed, with loss of magnesium, calcium, and phosphate, but this recovered spontaneously by one month after completion of treatment while the discrepancy between the creatinine clearance and the $^{99\text{m}}\text{Tc}$ -DTPA clearance was still present.

In the past year we have seen similar discrepancies in 10 other patients receiving cisplatin according to this schedule, though in two of the cases the discrepancy ($^{99\text{m}}\text{Tc}$ -DTPA clearance 100 ml/min *v* a creatinine clearance of 67 ml/min, and $^{99\text{m}}\text{Tc}$ -DTPA clearance of 130 ml/min *v* a creatinine clearance of 83 ml/min) was present before any cisplatin had been given. All our patients had cancer.

Clearly, therefore, absolute reliance on $^{99\text{m}}\text{Tc}$ -DTPA clearances as a guide to glomerular function is inadvisable. Under these circumstances, we would strongly support the views expressed by Dr Gabriel in his timely review.

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SIR,—Dr Roger Gabriel concludes that creatinine clearance with urine collected under controlled conditions remains the simplest, cheapest, and most useful measure of renal function. We do not agree.

That the test is cheap by comparison with ^{51}Cr -edetic acid is without doubt, and Dr Gabriel correctly mentions the inaccuracies of urine collection (as does Payne¹), but he fails to mention other potential inaccuracies such as the blood sample being collected outside the period of urine collection, measurement of the urine volume, and the fact that in most laboratories samples of urine require dilution before measurement of creatinine. It is hardly surprising therefore that a day to day precision of about 10% was obtained when creatinine clearance was measured in highly motivated laboratory staff,² while in patients with normal or mildly impaired renal function a day to day precision of up to 27% has been recorded.³ In strong contrast, however, the day to day precision of plasma creatinine assay is approximately 6%.⁴ Therefore, small changes in renal function can be monitored more accurately by plasma creatinine concentrations than creatinine clearances. Additionally, in patients with moderate renal failure the glomerular filtration rate determined by creatinine clearance may exceed inulin clearance by up to 25%.⁵

There are data available which give a guide to the expected reference ranges for plasma creatinine concentrations for men, women (pregnant and non-pregnant), infants, and children,^{6,7} but we are puzzled by Dr Gabriel's comment that no ranges are available for patients with renal impairment, since by definition those patients will have increased plasma creatinine concentrations outside quoted reference ranges.

Creatinine clearance is not the simplest or the most useful test and may be positively misleading for the reasons stated above. We therefore agree with Payne that health resources are wasted by the routine measurement of creatinine clearance.¹

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SIR,—Dr Roger Gabriel states that a glomerular filtration rate measurement with ^{51}Cr -edetic acid costs £40 but does not say how this figure is arrived at. By gross overestimation of this fact and by linking high costs to radiation exposure (without stating its magnitude) Dr Gabriel dismisses routine ^{51}Cr -edetic acid glomerular filtration rate measurements as expensive and unsafe. In contrast, "controlled" (author's term) urine collections and creatinine clearance measurements are considered cheap and accurate.

We do not wish to enter the familiar argument about the accuracy of a 24 hour urine collection, but the radiation burden of a ^{51}Cr -edetic acid glomerular filtration rate measurement is low and its cost not as high as Dr Gabriel suggests. The radiation burden from 2 MBq of ^{51}Cr -edetic acid is about 0.08 mGy to the kidney with an effective dose equivalent of 0.004 mSv. This is equivalent to 1/25th of the effective dose equivalent of one single chest radiograph. The cost of 2 MBq of ^{51}Cr -edetic acid is £2.30, and we submit that the staff costs of measuring glomerular filtration rate with ^{51}Cr -edetic acid are similar to those incurred with controlled—that is, supervised—24 hour urine collections and creatinine clearance measurements.

We maintain that measurements of glomerular filtration rate with ^{51}Cr -edetic acid remain safe and economic.

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SIR,—Dr Roger Gabriel based his leading article (1 November, p 1119) on my review "Creatinine clearance: a redundant clinical investigation."¹ Some of his comments on reference ranges, the early detection of renal failure, and urine collection are incorrect, leading him to the wrong conclusion.

Dr Gabriel said that I implied that serum creatinine concentration was a better measure of renal function if adjusted for age, sex, weight, pregnancy, and renal failure. I did not mention adjustment but did comment on normal values in relation to age, sex, body surface area, and pregnancy. In health early morning serum creatinine concentration, unlike creatinine clearance, shows little change with age during adult life.² It averages about 10 $\mu\text{mol/l}$ (0.11 mg/100 ml) lower in women than in men,² so separate adult reference ranges are helpful. It is wrong to attribute this sex difference to muscle mass. An investigation of