



tent at the race finish, while the other was certified dead later in a local private hospital.

Previous medico-legal autopsy diagnoses after sport-related deaths in our personal experience in Durban included cardiomyopathy, coronary artery disease, Marfan's syndrome and ruptured cerebral berry aneurysms. It is regrettable that autopsies were not performed in the above cases. Whether they should have been considered natural or unnatural may be debatable, but postmortem examinations could have served to establish the cause/s and mechanism/s of death without need for speculation, and before considerations on their preventability. Routine autopsy examinations in such instances would enlighten issues of familial/genetic study and counselling, scientific research into this area, and for 'selective pre-competition screening' in sport.

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Pre-analytical, analytical and post-analytical considerations in glucose point-of-care testing

To the Editor: Point-of-care (POC) blood glucose monitoring has become an accepted method to evaluate patients in the hospital setting. In most situations, the method is accurate with a short turnaround time, which expedites treatment decisions. The important issue to keep in mind is that any point of care test is subject to pre-analytical, analytical and post-analytical variability.

A case in point: a neonate who presented with prolonged jaundice, liver dysfunction (elevated transaminase, coagulopathy), and renal tubular dysfunction (normal anion gap metabolic acidosis and glucosuria), was treated with insulin after POC glucose values were reported to be above 15 mmol/l. When the patient's condition deteriorated, the POC glucose results were correlated with the laboratory plasma glucose concentrations done on the Beckman LX, using a glucose oxidase ion selective electrode method. The laboratory values were consistently low (discrepant to POC values). The urine showed 4+ galactose and the red cells showed reduced galactose-1-phosphate uridyl transferase (GALT) activity. The patient was diagnosed with galactosaemia.

POC blood glucose meters have evolved rapidly and new-generation meters can exclude many of the previously encountered pre-analytical problems including inadequate

sample volume, improper application and timing, removal of excess blood and lockout function if controls are out of range. Variables that may influence the analytical process include the haematocrit, environmental temperature or humidity, hypoxia, high triglyceride concentrations, and inaccuracy at very high and very low concentrations.¹ Method-specific interferences are also encountered, e.g. the POC device in this case (Roche Accu-Check Active) is a glucose dehydrogenase pyrroloquinolinequinone (GDH-PQQ)-based glucose measuring system. This system is not specific for glucose and may give false elevated glucose values in the presence of maltose, xylose or galactose (Accu-Check Active test strips package insert). Post-analytical factors that influence the interpretation of the result are whether a plasma or serum value is reported and the unit in which the result is reported. Recently, an International Federation of Clinical Chemistry (IFCC) working group recommended that all meters must be harmonised to the concentration of glucose in plasma, irrespective of the type of sample used.^{1,2}

When a POC device is used, the clinician should always familiarise himself with the test method and the influence of possible interferences on the method. Methods using glucose dehydrogenase with NAD as co-factor (GDH-NAD), hexokinase or glucose oxidase are specific for glucose and do not exhibit interference as a result of interfering sugars.³

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Hypertension: Holding on to your ACEs may be a good bet

To the Editor: The recently published South African Hypertension Guideline¹ provides a comprehensive review of the causes and risks of abnormal blood pressure and of its treatment, but falls short of offering a cost-effective approach to managing the burden. Understanding the causes of hypertension, the morbidity associated with it, and the effective treatments are necessary, but not sufficient, conditions for a cost-effective programme.^{2,3} Also, adding to the debate, one has to look at this from another perspective.

In clinical practice, it is often assumed that angiotensin receptor blockers (ARBs) and angiotensin-converting enzyme



inhibitors (ACEIs) can be used interchangeably, except for the small proportion of patients who develop ACEI-associated cough. Few studies have compared these classes head to head, and none has shown superiority of ARBs over ACEIs. While this evidence indicates that ACEIs and ARBs have equal efficacy in trial settings, the relative effectiveness of these drug classes in real populations and more typical health care settings is unknown.⁴ Indeed, it has been concluded that the use of ARBs may even confer a risk of harm, specifically through their association with higher rates of myocardial infarction (MI). This has given rise to much concern, with many health care professionals and patients asking whether ARBs should be avoided.⁵

However, before plunging into a debate on the use of ACEIs and ARBs, the point of departure ought to be the South African Guideline Working Group 2006 consensus statement: 'Compared with ACEI, ARBs provide a more effective blockade of the renin-angiotensin system'.¹ Furthermore, the statement reads: 'The price of ARBs remains a negative factor until it falls or there is a generic equivalent'. And herein lies an important caveat.

In addition to the situation after an MI, several systematic reviews have concluded that ACEIs and ARBs do not differ in efficacy for reducing all-cause mortality or hospitalisations in patients with chronic heart failure or high-risk MI, suggesting that the use of ARBs should be reserved. Others have even observed that while ACEIs have been shown to reduce all-cause mortality, such effectiveness has not yet been demonstrated for ARBs. As more expensive niche drugs, ARBs are therefore important for patients who develop a side-effect such as the aforementioned cough, or rash or angioedema.

A switch to an ARB is not indicated for side-effects such as hypotension, decline in renal function, or increase in serum potassium concentrations, as these are equally likely with ARB therapy. In the absence of any financial constraint, one could argue that ARBs – with equal efficacy and fewer side-effects – should be used for most or all patients; however, prescription drug costs remain a major concern throughout the health care system and must be taken into account in weighing up choices between drug classes.⁴

The findings of a recent population-based study confirm that there is equivalence in survival after MI between patients who receive ARBs versus ACEIs, and that there is some evidence for increasing overutilisation of ARBs, which may be inappropriate, given their substantially higher cost. Reduction of these opportunity costs is important from a policy perspective, and could be achieved without impairing patient safety or clinical outcomes.⁴

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