

## Translating Health Research: From Bench to Bedside

Chair: *Fitzroy Henry*

### **Iatrogenic Diabetes and Doping**

*Eugenie Brown-Myrie*

The growing widespread use of pharmacological agents to promote performance among professional athletes has become a matter of grave concern. Anecdotal reports about the use of insulin to improve performance has also been on the increase. Insulin is a peptide hormone that plays an essential role in the metabolism of glucose, proteins and fats. It is used in the therapeutic management of diabetes patients, particularly, those who have the diagnosis of Type 1 diabetes. Because of its effects on muscle tissues, athletes have been tempted to abuse insulin in an effort to enhance their performance in sporting activities. However, insulin used as a doping agent may expose the abuser to serious adverse reactions, such as hypoglycaemic and its life-threatening consequences. The International Olympic Committee banned the use of insulin by non-diabetic athletes in 1998 and since insulin is now a prohibited substance on the World Anti-Doping Agency (WADA) Prohibited List, athletes who have diabetes must obtain a Therapeutic Use Exemption (TUE) giving permission to use insulin while they participate in competitive sports. While the use of insulin among diabetic athletes is an issue requiring close monitoring and regulation, attention must also be given to the effects that other prohibited substances may have on the overall management and care of the diabetic athlete. The adverse effects of abused drugs among diabetic athletes deserve examination and discussion.

### **Nutrition, Diabetes and the Elite Athlete**

*Christine Fray-Aiken*

Diabetes mellitus is a group of metabolic disorders of carbohydrate, fat and protein metabolism that results from defects in insulin secretion, insulin action (sensitivity) or both, and requires ongoing medical care and patient self-management education and support. Whether an individual has either Type 1 or Type 2 diabetes, he/she can become an elite athlete or train and compete at a high level of exercise intensity and endurance. However, both conditions create nutritional challenges during and after exercise. In order for an athlete to maintain proper nutritional status and glycaemic control during exercise or competition, there are a variety of conditions that should be taken into considera-

tion *eg* the type and duration of exercise, glucose concentrations before starting exercise, and the relation of exercise to meals and insulin doses.

### **Trends in Clinical Trials: Implications for Diabetes Management**

*Lenore Coleman*

In the United States of America (USA) there is an increasing demand on pharmaceutical and biotech companies to increase participation of African Americans and Latinos into clinical research protocols. The need to meet a certain threshold of minority participation is especially critical if the study drug will be used to treat disease states with a high prevalence in minorities (*ie* diabetes and cardiovascular disease). In some pivotal (3A and/or 3B) studies, the Food and Drug Administration (FDA) is now requiring 10–40% enrolment goals for minorities before the study drug will be approved for use in the USA.

Healing Our Village (HOV; Clinical Research – HOVCR) has developed an innovative recruitment and retention model focussed on increasing minority participation in clinical trials while simultaneously educating minority patients about their disease state. Our model has three components; 1) research site support; 2) referral identification, patient education and support; 3) community outreach and point-of-care testing.

**Research Site Support** – In the area of clinical trials in diabetes and cardiovascular disease, HOVCR contracts with licensed clinical pharmacists and/or diabetes educators and certified medical assistants (Wellness Coaches) to work within healthcare systems (urban hospitals and clinics), private research centres and primary care practices to provide database review either through an electronic health record (EHR) or *via* chart review. Through this process, we are able to determine all potentially eligible patients that meet the inclusion/exclusion criteria of the study protocol. This chart review process occurs at research sites that are selected by the Sponsor. We work closely with the principal investigator and the study coordinator to assist with scheduling for Visit 1 (screening visit), and create low literacy recruitment materials that are culturally sensitive.

**Referral Site Identification, Patient Education and Support** – HOVCR works with local medical associations, hospitals and clinics to identify potential referral networks

throughout the USA. We have in place business associate agreements (BAA) which allows us to have access to personal health information (PHI). The HOVCR staff performs chart reviews, contacts by the telephone study patients that match the inclusion/exclusion criteria to provide pre-screening chronic disease (*ie* HIV/AIDS, diabetes, cardiovascular disease, cancer, obesity, COPD/asthma) workshops. During these workshops, study patients and their families are provided education regarding their disease state, review of the pertinent information regarding the study drug or device, a complete medication review, overview of the importance of medication adherence and the pros and cons of participation in clinical research. The HOVCR staff continues to work with the study patients throughout the time course of the study to provide an additional support system for the patients. During this process, HOVCR is able to improve the overall management of diabetes and cardiovascular disease to assist patients with lifestyle and behaviour changes. This service is provided to all referral patients in a given health system or physician practice whether or not the patients agrees to participate in the study. Referral institutions and physicians see these patient education services as a valuable asset to their provision of patient care.

**Community Outreach and Point-of-Care Testing** – HOVCR provides community outreach educational events and point-of-care testing in geographical locations as designated and approved by the sponsoring organization. The community events are used to identify potential study subjects that may meet the inclusion/exclusion criteria for a given protocol. Point-of-care testing (blood pressure, blood glucose, height, weight, percentage body fat and body mass index) is generally provided after participants sign informed consent. Many of these events take place at gospel and/or R and B concerts, comedy shows, churches, public schools and parks. The size of the event is generally 100–200 participants. The community events serve as a platform to educate minority patients regarding the advantages and disadvantages of participation in clinical research. At these community events, we take the opportunity to educate the community at large and enrol patients into Village Club (health coaching membership club) as well as encourage participants to listen to our weekly internet radio show – Village Talk.

## CARES SYMPOSIUM

### A Systematic Approach to Hypoglycaemia

*Monika Skarulis*

Hypoglycaemic: a systematic approach to diagnosis and treatment

Hypoglycaemic can be a life-threatening complication of both common and rare conditions. The various aeti-

ologies of hypoglycaemic will be discussed through case-based studies of insulinoma, metastatic tumour, bariatric surgery and iatrogenic causes. A general approach to the evaluation and treatment of patients with this condition will be reviewed.

Hypercalcaemia: new developments

Hypercalcaemia is a common problem in the hospitalized patient and in the ambulatory care setting. In this session a quick review of the aetiology of elevated calcium, will be followed by a discussion of new tools to treat refractory hypercalcaemia associated with malignancies with emphasis on parathyroid cancer.

### Hypertensive Crisis – Is this a Pheochromocytoma?

*Nicole Tilluckdharry*

Endocrine causes account for 5–10% of all patients with hypertension. Pheochromocytoma, a relatively rare condition, is the underlying aetiology in 0.2–0.6% of all patients with hypertension. Early recognition, based on knowledge of its varied signs and symptoms, is essential to the diagnosis of pheochromocytoma. The classic triad of tachycardia, headache and diaphoresis is only encountered in about half of these patients, however, hypertension occurs in over 90% of patients. Hypertension in pheochromocytoma is most often paroxysmal in nature and can result in hypertensive crisis. This discussion focusses on the identification of patients with possible pheochromocytoma and its early diagnosis and management in those presenting with hypertensive crisis.

### Adrenal Emergency in a Neonate

*Virendra RS Singh*

The presence of hyponatraemia, hyperkalaemia, hypotension, hypoglycaemia, genital abnormality and hyperpigmentation can be important clues to adrenal dysfunction in a neonate. Adrenal dysfunction is often confused with neonatal sepsis; however, in adrenal insufficiency, simple treatment can be highly rewarding and, more importantly, life saving. Treatment includes resuscitation, implementation of salt and hormone replacement and ultimately a search for the underlying disorder. Parent education for long term management is critical prior to discharge.

The diagnosis of adrenal dysfunction can be challenging in resource limited settings because of difficulty obtaining diagnostic studies, but effective measures can be instituted in the interim and once the diagnosis is made, day to day management is straightforward.