Editorial

It is disappointing that, despite South Africa having the highest prevalence of HIV infection in the world, very few studies regarding the impact of nutritional interventions (more specifically, nutritional supplementation) on people living with HIV/AIDS (PLWHA) on antiretroviral therapy (ARV) have been published. The study published in this edition of the SAJCN, which was conducted in 2007 in five clinics in the Northern Cape Province to assess the nutritional status and the impact of nutritional supplementation, sought to address the paucity of data in the South African context regarding this subject.

In this study, subjects received an instant enriched maize product for a period of four months. Although 158 subjects were enrolled in the study, only 98 were assessed (38% dropout rate for both the ARV therapy and nutritional supplementation). Interestingly, 27 (27.6%) of the subjects had a body mass index (BMI) < 18.5 kg/m^2, 63 (64.3%) had a BMI of 18.5-24.9kg/m^2, and eight (8.2%) were overweight (BMI of 25.0-29.9kg/m^2).

A positive outcome of the study was that the subjects with a BMI < 18.5 kg/m^2 had a median weight gain of 1.13kg during the four month study period. The total number of subjects overall who gained weight was 43 (49.4%). However, a disturbing outcome of the study was that 40.2% (n = 35) of the subjects (in particular, the group with a BMI of 18.5-24.9 kg/m^2) actually lost weight during the study.

The South African guidelines on ethics in medical research were first developed by the Medical Research Council (MRC) over 30 years ago. The last document on medical research ethics, published by the MRC in 2002,[1] was incorporated into the South African Department of Health (DoH) Research Ethics Guidelines published in 2006. All clinical research must be governed by the four principles of biomedical ethics, namely: *autonomy*, recognising the right to self-determination and the notion of human dignity; *beneficence,* ensuring that the study will benefit the research participant; *non-maleficence,* ensuring that the research participant will come to no harm; and *justice,* notably distributive justice, ensuring equal distribution of risks and benefits between communities.[1]

Bearing in mind the principles of beneficence and non-maleficence, a study of this nature should include a risk-benefit analysis, and parameters for when to halt the research. It would be interesting to know whether this was undertaken, since the authors reported that some subjects lost as much as 8 kg of weight in the four month period of the study. In a case such as this, measures must be taken to support the patients that had lost weight. Perhaps this was made difficult by the fact that the study was carried out within the environment of the government's nutritional supplementation programme.

Many factors, singly or in combination, have been thought to be responsible for weight loss in PLWHA, including HIV enteropathy, nausea and poor appetite related to ARV therapy (particularly the first-generation therapies that were used during the study period in 2007), co-infection (e.g. tuberculosis), candidiasis, and gastroenteritis and/or influenza, especially during the first 48 weeks on ARV therapy, during the immune reconstitution phase.[2] When providing a nutritional supplement to this group, therefore, it will be important to assess the palatability, tolerance and safety profile (certificate of analysis) of the product. It seems the researchers assumed that the nutritional supplement was safe and palatable, since it was a part of the provincial government nutritional supplementation programme, rather than undertaking a pilot study to assess its acceptability for the purposes of the research.

Nutritional analysis of the supplement is particularly important in the context of HIV pharmacotherapy, since many enriched foods and therapeutic supplements available in South Africa have a high fat content per serving. For instance, the drug efavirenz (EFZ), included in both the outdated DoH drug regimens and the current version (February 2010)[3] as

a first-line treatment, should not be taken with a high-fat meal, as this will increase the absorption of EFZ. There have been reports of increased side-effects, particularly in the early weeks of treatment. Low-fat or moderate-fat is usually defined as 5-10 g of fat per 100 g serving. If the enriched porridge supplement used in the programme were high in fat, for example, the participants would have to be verbally counselled or given written instructions to take the enriched supplement between meals and not with their ARV drugs.

In most large randomised controlled prospective studies, it is the usual practice to analyse the data six-monthly. The duration of this study was only four months, and it is possible that the data were only analysed at the end of the four months. The dietitians who were collecting the data, for example, were possibly unable to alert the researchers to weight loss of clinical significance, e.g. 8 kg in four months.

Since the inception of the South African Comprehensive HIV programme, there has been more emphasis on blanket generic nutritional supplementation, with widespread poor stock availability and inconsistent provision of supplementation, poor record keeping, and/or little analysis of the data collected. Despite spending a considerable amount of money on nutritional supplementation (e.g. in Mpumalanga, R16.8 million was allocated for the procurement of nutritional supplements in the 2010/11 budget),[4] there is very little published evidence which supports the assumption that the ARV nutritional supplementation programme has been effective.

As a nation, we have an ethical obligation to aim to provide our moderately and severely malnourished patients, particularly PLWHA, with safe and effective nutritional supplementation. The available information indicates that only the DoH National Nutrition Directorate and Procurement Division have the access to products and budget to perform nutritional analysis certification and stringent food safety compliance. It is, therefore, of serious concern that some provinces persist in advertising for food and therapeutic nutritional products that are not on the National RT9 Feed Tender, hence allowing products that are potentially unsafe to be given to the most vulnerable of our patients.

There is a dire and urgent need for the government to invest in live data collection (integrated with other aspects of medical care) to allow for constant analysis of how the nutrition supplementation programmes are being implemented and, more importantly, how effective these programmes are. There is much scope for using this information to improve on the criteria for nutritional supplementation and the specific type of food or therapeutic feeds provided. The nutritional management of HIV is an extremely dynamic setting, especially in the current climate of change in first-line drug regimens and the government's recent implementation of the national HIV Testing and Counselling programme, which is expected to lead to a significant reduction in severely malnourished new patients. There is also a need to use limited nutritional budgets more effectively, through better defined entrance and exit criteria for such supplementation programmes, and providing appropriate safe therapeutic feeds when warranted. To conclude, as a leading expert in ethics has eloquently documented, we need more "responsible science".[5]

Downs JH, BSc Diet, Hosp Dip Diet, BSc Diet Hons
Principal Dietitian, King Edward VIII Hospital, Durban
jane.downs@kznhealth.gov.za

References

1. South Africa Medical Research Council. Guidelines on ethics in medical research: general principles. c2002. Available from: http://www.mrc.ac.za/ethics/ethics.htm.
2. Downs JH. The gastrointestinal tract and HIV pathogenesis. SAJCN. 2010;23(1):S65–S68.
3. Department: Health, Republic of South Africa. The South African antiretroviral treatment guidelines 2010. c2010. Available from: http://www.doh.gov.za/docs/factsheets/guidelines/art.pdf.
4. South African Governement Information. Mpumalanga Department of Health policy and budget speech for 2010/11 by Honourable MEC DG Mahlangu, Provincial Legislature. c2010. Available fromhttp://www.info.gov.za/speech/DynamicAction?pageid=461&sid=7347&tid=7568.
5. Horner J, Minifie FD. Research ethics i: responsible conduct of research (RCR) – historical and contemporary issues pertaining to human and animal experimentation. J Speech Lang Hear Res. 2010 Nov 16. [Epub ahead of print].