

## The role of cytokines in enhanced recovery after surgery

**Elroy Patrick Weledji**

University of Buea, Cameroon

Cytokines (Interleukins (IL1,6,8) and tumour necrosis factor (TNF)) are helpful towards the host response but potentially hazardous if uncontrollable or in excess. During the metabolic response, there is increase in glucose production with simultaneous increase in insulin secretion. However, due to the antagonistic effects of the stress hormones (adrenaline, glucagon, cortisol and growth hormone) there is decreased tissue sensitivity to insulin. The insulin resistance developing after surgery gives rise to hyperglycaemia ('diabetes of injury') similar to type 2 diabetes mellitus but faster. Insulin resistance rises with the magnitude of surgery. Hyperglycemia increases complications and mortality as it overloads the mitochondria blocking glycolysis and the Krebs cycle. Thereby, enhancing further inflammatory response and cytokine production which leads to the vicious cycle of insulin resistance and hyperglycaemia. The organs mainly affected are the kidney, endothelia of blood vessels and heart, blood cells and neural tissue as they have an uncontrolled inflow of glucose, with no storage capacity.

Laparotomy down regulates MHC class II antigen on the monocytes mediated by IL-10 released by the T-helper 2 cells. Defects in neutrophil chemotaxis, phagocytosis and lysosomal enzyme contents have been identified. It would be interesting to know how much of these may be the effect of the hyperglycaemia (diabetes) of injury.

By minimizing cytokine production through minimally invasive (laparoscopic) surgery, minimising the pain effect of cytokines via the use of thoracic epidural anaesthesia, pre-operative anabolic setting of the patient and avoiding fasting would thus avoid the stress hormones and avoid stress-induced hyperglycaemia and the sequelae.

### Biography

Elroy Patrick Weledji, B.Sc. (Hons) Physiology (Lond), M.Sc. (Lond) Neurological Science, MBBCh BAO, FRCS (Edin) is senior Lecturer in Anatomy and Clinical Surgery, Faculty of Health Sciences, Gastrointestinal Surgeon, Regional Hospital Buea and head of the Health Division of the University of Buea, Cameroon. He is also a member of the Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland (AUGIS) and the first non-European member of the European Association of Coloproctologists (ESCP). His interests are in surgical sepsis, oncology and coloproctology and has published 23 scientific and clinical papers. He is the first editor-in-chief of the faculty journal "African Journal of Integrated Health" (AJIH).

[elroypat@yahoo.co.uk](mailto:elroypat@yahoo.co.uk)