Editor’s choice

The British Medical Bulletin, for its first print edition of 2014, has another set of reviews on a wide range of topics and specialties, concentrating on new developments in medical practice. These reviews are intended to be accessible to non-specialists in order to bring the subjects to a wide audience.

The first review is entitled Implementing tissue engineering and regenerative medicine solutions in medical implants (page 3) by Ye and Peramo from the Shanghai Jiao tong University, China and University of Michigan, Ann Arbor, Michigan, USA.

They state that surgical implants are widely used in the medical field but their long-term performance is limited due to failure of integration with tissues. This manuscript describes known problems associated with implants and discusses novel solutions used in tissue engineering and regenerative medicine that can be implemented in this uncommonly discussed medical area. Procedures for surgical implantation have grown substantially in the last few decades and provided improved quality of life for patients, regardless of area of implantation and device type and purpose. There is an increasing trend for implant procedures to be performed in younger individuals. Current implants generally do not allow the physician to have controlled long-term access to internal tissues in contact with the implants, for example to release specific compounds when medically needed to the problem area.

The second review is entitled Metallic or bioabsorbable interference screw for graft fixation in the anterior cruciate ligament (ACL) reconstruction (page 19) by Papalia, Vasta, D’Adamio, Giacalone and Maffulli from the University of Rome, Italy and the Barts and The London School of Medicine, London UK.

Approximately 100 000 anterior cruciate ligament (ACL) reconstructions are performed in the USA each year. Interference screw fixation is considered the standard for rigid fixation of the graft and provides higher fixation strength compared with other devices such as staples or buttons. Most studies show no intergroup difference in terms of outcomes measured with validated clinical scores such as IKDC (International Knee Documentation Committee), Lysholm score and Tegner activity level. There was no significant difference regarding range of motion. Knee stability showed a significant difference only in one study, favouring metallic interference screws. Tunnel widening is much more evident and marked in patients who underwent ACL reconstruction with bioabsorbable screws, with no influence on the final clinical results achieved. Complication rates between the two screw classes were similar.

The third review is entitled A review and update on the current status of retinal prostheses (bionic eye) (page 31) by Luo and da Cruz from Moorfields Eye, London UK.

The Argus® II is the first retinal prosthesis approved for the treatment of patients blind from retinitis pigmentosa (RP). Other devices are being developed, some of which are currently in clinical trial. Retinal prostheses play a part in restoring vision in blind RP patients providing stable, safe and long-term retinal stimulation. Objective improvement in visual function does not always translate into consistent improvement in the patient’s quality of life. Controversy exists over the use of an external image-capturing device versus internally placed photodiode devices. Improvement in retinal prosthetic vision depends on (i) improving visual resolution, (ii) improving the visual field, (ii) developing an accurate neural code for image
processing and (iii) improving the biocompatibility of the device to ensure longevity.

The fourth review is entitled **Minimally invasive versus open surgery for Achilles tendon rupture** (page 45) by Del Buono Volpin and Maffulli from University of Rome, University of Padova, Italy and the Barts and The London School of Medicine and Dentistry, London.

This review provides a comprehensive description of clinical, functional outcomes, and complications after open and minimally invasive surgery for Achilles tendon ruptures. The range of motion was significantly greater after percutaneous repair than open surgery. The number of complications that occurred after open surgery was higher than after minimally invasive surgery. Minimally invasive surgery is less expensive and less time demanding. Minimally invasive and open surgery of the Achilles tendon is grossly equivalent. However, iatrogenic neurological complications are more frequent after percutaneous repair. Novel percutaneous repairs have been proposed to minimize the risk of sural nerve injury.

The fifth review is entitled **Novel concepts in inflammatory bowel disease** (page 55) by Moran, Dubeau, Kapla, Panaccione and Ghosh from the University of Calgary, Canada, and the University of Nottingham, Nottingham, UK.

Clinical management in inflammatory bowel disease (IBD) is constantly changing. Although improvement in symptoms is of paramount importance, using this as the only surrogate marker of disease activity might underestimate disease burden. Patients with aggressive disease phenotypes should be identified at the onset and treated more intensely in order to achieve long-lasting mucosal remission. Patients who have mild and indolent disease need to be identified and not over-treated. The primary endpoint in IBD management should ideally be mucosal healing. Ample data are now available that correlates mucosal healing with surgical-free outcomes with minimal intestinal damage and patient disability. However, the exact degree of mucosal healing that will lead to improved long-term remission, decreased hospital and surgical rates remains unknown. Clinical translational work is needed to identify novel pathways in IBD pathogenesis that sub-select patients who would benefit by specific-cytokine pathway modulation.

The sixth review is entitled **Neuroendocrinology of obesity** (page 73) by Field from Imperial College London.

He says recent advances in physiological understanding of obesity have provided a new perspective on its origins and potential treatments. The gut releases several hormones in response to changes in nutritional status. Changes in the plasma concentration of these hormones are responded to by central nervous system circuits controlling appetite and energy expenditure. Modified gut hormone secretion is responsible, at least in part, for weight loss after certain forms of bariatric surgery. The extent to which modified gut hormone secretion is also responsible for remission of diabetes after bariatric surgery is contested, as severe calorie restriction alone can restore insulin secretion. Many gut hormone-based drugs are being developed for obesity. If suitable drugs receive marketing authorization, it will be important to discover whether their combined use, mimicking the hormonal milieu after bariatric surgery, can safely cause weight loss and metabolic benefits of similar magnitude to those resulting from bariatric surgery.

*Norman Vetter, MD, January 2014*