

# THE THIRD JAPAN-ASEAN MEN'S HEALTH & AGING C O N F E R E N C E

## THE NEW AGE MAN

[www.MensHealthConference2008.com](http://www.MensHealthConference2008.com)

1 - 3 DECEMBER 2008  
GRAND COPTHORNE WATERFRONT HOTEL  
SINGAPORE

Organised by:



Society for MEN'S HEALTH Singapore  
新加坡男性保健协会

Endorsed by:



Singapore Urological Association

Sponsored by:



International College of Surgeons



Ministry of Health  
Singapore



SINGAPORE EXHIBITION  
& CONVENTION BUREAU

UNIQUELY  
Singapore

## **Articular Cartilage Regeneration with Stem Cells**

Dr Saw Khay Yong

Kuala Lumpur, Malaysia

Degenerative joint disease results from a breakdown involving the articular cartilage. The articular cartilage is devoid of blood supply, lymphatic drainage and innervation. As the chondrocytes are surrounded by the extracellular matrix without any blood supply, they are ineffective in responding to any injury unless the subchondral bone is penetrated. Therefore, in partial thickness injury to the articular cartilage, there is no response to injury whereas a full thickness defect penetrating into subchondral bone will allow access to bone marrow stem cells which then initiates a process of cartilage repair.

In established chondral injuries to the knee joint, non-surgical treatment which includes physiotherapy and medication do not allow healing to the cartilage defects. On the other hand, current established surgical options for example ACI (Autologous Chondrocyte Implantation) and OATS (Osteochondral Autogenous Transfers) are not entirely satisfactory.

Recent published evidence suggested that it may be possible to regenerate a better cartilage by performing subchondral drillings to cartilage defect and post operatively induce cartilage regeneration by intra-articular injection of a combination of stem cells together with hyaluronic acid. Animal studies initiated by doctors from KLSMC (Kuala Lumpur Sports Medicine Centre) and the orthopaedic department of University Putra Malaysia and veterinary hospital showed that it was possible to regenerate a better cartilage by the combination of bone marrow stem cells and hyaluronic acid into the defective areas following subchondral drillings.

A pilot study on clinical patients commenced following the animal work whereby cartilage defects seen during arthroscopic surgery was followed by subchondral drillings. The drillings into the bone marrow would allow the formation of a blood clot scaffold. Post operatively, patient will undergo peripheral blood stemcells harvesting. A week after surgery, a mixture of peripheral blood stemcells together with hyaluronic acid will be injected into the affected joint. This would be a weekly injection for 5 weeks.

Second look arthroscopy and biopsies showed evidence of hyaline cartilage regeneration. Regular MRI scans at intervals showed satisfactory healing of the chondral defects including the subchondral bone. In additional to isolated chondral defects, this new found procedure also allows the subchondral drillings to be applied to multiple areas of chondral defects. With the post operation injections of a mixture of stem cells and hyaluronic acid, no second surgery or open surgery is required as in the case of ACI.