

Review Group Membership

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The report was presented to National Stem Cell Expert Committee and orthopaedic surgeons in a meeting on 18 January 2013.

Disclaimer:

Technology review is a brief report, prepared on an urgent basis, which draws on restricted reviews from analysis of pertinent literature, on expert opinion and / or regulatory status where appropriate. It is subjected to an external review process. While effort has been made to do so, this document may not fully reflect all scientific research available. Additionally, other relevant scientific findings may have been reported since completion of this review.

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2012

Introduction

Articular cartilage exhibits little or no ability for self-repair, resulting in progressive tissue loss and dysfunction following isolated cartilage injuries. There are various surgical methods currently used in the effort to regenerate hyaline. However, more often than not the treatments result in the formation of fibrocartilage. Emerging evidence indicates that direct intra-articular injection of stem cells may boost the normally limited repair and limit destructive process.

This information was requested by the Director of Medical Development Division, Ministry of Health Malaysia following Minister of Health instruction to review the proposal by [REDACTED] to endorse the technology as a standard treatment for patients with articular cartilage defects.

Objective/Aim

To assess the efficacy and safety of autologous peripheral blood stem cells for articular cartilage regeneration

Results and Conclusions

There were two studies on peripheral blood stem cells identified, a randomised controlled trial (in-press) and a case series. [REDACTED] also provided unpublished long term non-comparative data on efficacy and safety. Three studies on intra-articular mesenchymal stem cells were included as well.

The usage of the new technique that "is the combination of the microfracture surgery or subchondral drilling, and the administration of hyaluronic acid and peripheral blood stem cells" is an innovation introduced at the [REDACTED].

Limited good level of evidence showed that intra-articular injection of peripheral blood stem cells in combination with hyaluronic acid (HA) resulted in improvement of the quality of articular cartilage repair when compared to treatment with HA alone as observed from the MRI and histologic findings. The evidence showed that there was no serious adverse event or complications reported when applying this procedure.

Multi centre studies such as prospective double blind RCT need to be conducted to gather more evidence to prove the reliability, efficacy and safety of this technology before it could be recommended as standard treatment options for cartilage repair.

Methods

Literature was searched through electronic databases which included MEDLINE, Cochrane Library via Ovid, EMBASE, PubMed and general databases such as Google Scholar.

The search strategy used these terms either singly or in various combinations: Autologous peripheral blood stem cells, PBSC, cartilage injury, articular cartilage repair and osteoarthritis

The search was limited to human study. The last searched was conducted on 19 January 2013.