Abstract

Background

Hepatocellular carcinoma (HCC) is the fifth most diagnosed cancer and the second leading cause of cancer-related deaths worldwide. Sorafenib is the standard treatment used in the advanced stages of HCC. Cell therapy with mesenchymal stem cells (MSCs)-based cell therapy has proven effective in immune regulation and tumour growth inhibition.

Objectives

In this study, we investigated the anti-inflammatory effect of MSCs on HCC xenografts.

Methods

Human HepG2 cell lines were subcutaneously implanted into the flank of 12 nude mice, divided into three groups: the control group, the IV group (intravenous MSCs injection) and the local group (local MSCs injection). Mice were sacrificed 6 weeks after tumour implantation, and tumours were resected entirety. Quantitative real-time polymerase chain reaction (qRT-PCR) measured the gene expression of inflammatory markers, including tumour necrosis factor-α (TNF-α), interleukin (IL)-1α and IL-10. Aspartate transaminase (AST), alanine transaminase (ALT) and urea levels were measured using spectrophotometry to ensure the safety of MSC therapy.

Results

Gene expressions for all three inflammatory markers were reduced in both MSCs groups compared to the control group. AST, ALT and urea levels remained in normal ranges.

Conclusions

MSC therapy can reduce inflammation in HCC xenograft mouse models.