Expression and distribution of M1 and M2 macrophages in the degeneration process of human lumbar intervertebral disc herniation: A histological and clinical efficacy analysis

Xiao-Chuan Li MD¹,², Shao-Jian Luo MD¹, Wu Fan MD¹, Tian-Li Zhou MD¹, Chun-Ming Huang MD¹,², Mao-Sheng Wang MD¹,³,*

¹Department of Orthopaedic Surgery, Gaozhou People's Hospital, Guangdong, 525200, China
²Postdoctoral Innovation Practice Base of Gaozhou People's Hospital, Guangdong, 525200, China
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Introduction

The prevalence of M1 and M2 macrophages and their correlation between M1/M2 positivity and therapeutic parameters of clinical efficacy was unclear. Hence, this study was to determine the expression and distribution of M1 and M2 macrophages in LDH and investigate the association between M1/M2 positivity and outcome of LDH therapy.
Methods

Immunohistochemical analyses of M1 and M2 markers were used to identify M1/M2 macrophages and the association among prevalence and clinical efficacy was evaluated. Differences in the presence of M1 and M2 macrophages with or without modic changes (MCs) and those in the high-intensity zone (HIZ) were also analyzed.
Fig 1. Correlation between iNOS positivity and clinical Efficacy (VAS score or ODI) analyzed on pre-operative day 3, as well as post-operative months 1 and 12.
Fig 2. Analyses of the correlation between CD206 positivity and clinic efficacy (VAS score or ODI) were performed on pre-operative day 3, as well as post-operative months 1 and 12.
Fig 3. Comparison of iNOS+ (A) and CD206+ (B) Expression in LDH patients with or without MCs. *P<0.05.
Fig 4. Comparison of iNOS (A) and CD206 (B) positivity in NPs from LDH patients with and without HIZ changes. *P<0.05.
Discussion

Firstly, few type I and III MCs were collected in our study over two years, so only type II MCs were analyzed.

Secondly, only two types of macrophage were tested.

At last, macrophages originated from recruited cells or resident cells.
Summary points

Their prevalence was significantly correlated with clinical efficacy indicated the important role of M1/M2 transition in LDH.

The differences of prevalence in MCs and HIZ were significant.