

论著

关节液中纳米颗粒的测量对关节疾病诊断的意义

吴昊¹, 屠美², 姚平³, 谭文成¹, 姚成灿⁴, 黄耀熊⁵, 查振刚^{1△}

暨南大学 1 附属第一医院骨科, 2 理工学院材料科学与工程系, 3 医学院生理教研室, 4 药学院, 5 生物医学工程研究所, 广东 广州 510632

收稿日期 2006-1-18 修回日期 2006-5-29 网络版发布日期 2008-7-13 接受日期 2006-5-29

摘要

目的: 探讨不同状态下关节液中纳米颗粒与关节疾病种类的相关性。方法: 抽取正常人、膝关节骨性关节炎 (KOA) 和滑膜炎 (KTS) 患者的关节液, 利用准弹性激光散射技术测定关节液中纳米颗粒的粒度大小及其分布, 利用相分析电泳光散射技术测定关节液纳米颗粒的 Zeta 电位, 并采用相关分析方法分析纳米颗粒的粒度、Zeta 电位与疾病的相关性。结果: KOA 和 KTS 关节液纳米颗粒的平均粒度和 Zeta 电位都分别显著大于正常对照 ($P < 0.01$), 粒度和 Zeta 电位分布曲线比正常对照组的宽 ($P < 0.01$)。关节液中纳米颗粒的平均粒度 ($r_p = 0.7972$, $P < 0.01$)、Zeta 电位 ($r_p = 0.6319$, $P < 0.01$) 与关节的疾病种类存在很好的相关性。结论: 关节液纳米颗粒的粒度和 Zeta 电位与关节疾病存在显著的相关关系, 可建立起一个关节疾病早期诊断的检测方法。

关键词 [骨性关节炎, 膝; 滑膜炎; 滑液; 纳米技术; Zeta 电位](#)

分类号 [R363](#)

Clinical significance of nano-particles in synovial fluid for the diagnosis of joint disease

WU Hao¹, TU Mei², YAO Ping³, TAN Wen-cheng¹, YAO Cheng-can⁴, HUANG Yao-xiong⁵, ZHA Zhen-gang¹

1 Department of Orthopaedics, The First Affiliated Hospital, 2 Colleges of Science and Engineering, 3 Department of Physiology, Medical College, 4 College of Pharmacy, 5 Department of Biomedical Engineering, Jinan University, Guangzhou 510630, China. E-mail: zhgg@tom.com

Abstract

AIM: To study the relationship between the diameter or Zeta potential of nano-particles in synovial fluid and the type of joint disease. METHODS: Synovial fluid was extracted from the joint of health volunteers, patients with knee osteoarthritis (KOA) and knee traumatic synovitis (KTS), particle diameter and distributing of nano-particles in synovial fluid was examined by the techniques of quasi-elastic laser light scattering, and zeta potential was detected by phase analysis electrophoresis laser-scattering. Furthermore, the correlation between diameter, zeta potential and the type of knee joint disease was observed. RESULTS: The average diameter and zeta potential of nano-particles in synovial fluid of KOA and KTS were significantly larger than those of normal health control ($P < 0.01$), respectively. The distributing curve of granularith and Zeta potential were obviously wider ($P < 0.01$). There is close correlation between the average diameter ($r_{sp} = 0.7972$, $P < 0.01$) and zeta potential ($r_{sp} = 0.6319$, $P < 0.01$) of nano-particles in different joint diseases. CONCLUSION: The diameter and zeta potential of nano-particles in synovial fluid may have clinical significance to diagnose knee joint disease. It is expected that a kind of inspecting approach can be built on early diagnose of arthropathy according to this method.

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(737KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中包含“骨性关节炎, 膝; 滑膜炎; 滑液; 纳米技术; Zeta 电位”的相关文章](#)
- ▶ [本文作者相关文章](#)

- [吴昊](#)
- [屠美](#)
- [姚平](#)
- [谭文成](#)
- [姚成灿](#)
- [黄耀熊](#)
- [查振刚](#)

Key words [Osteoarthritis](#) [knee](#) [Synovitis](#) [Synovial fluid](#) [Nanotechnology](#) [Zeta potentials](#)

DOI: ISSN:1000-4718

通讯作者 查振刚 zhzg@tom.com