Value of BOLD and DWI Technology in Transplanted Renals with Early Acute Rejection:A Perspective Experience on Human

Objective： To perspectively investigate the value of BOLD_R2* and DWI_ADC in monitoring human renals with early acute rejection.

Methods：33 cases of healthy kidneys in situ (group A), 34 cases of normal renal allograft (group B) and 15 cases of renals with acute rejection (group C) who underwent BOLD and DWI procedure at 3.0T were selected as the research objects. The datas were transfered into the workstation for processing after MRI. The measurements of R2* and $ADC_{0\text{-}100}$, $ADC_{0\text{-}800}$ standardized with muscle on renal cortex, medulla were obtained among the three groups, P<0.05 was difference significant. According to the pathological biopsy, the values of BOLD_R2* and DWI_ADC standardized to differencitae the kidneys with acute rejection were assessed by ROC curve.

Results： There were statistic significance for R2* on renal medulla among the three groups(P<0.05), however no statistic significances were found for medullary R2*between group A and B; While no statistic significances were found for cortical R2* among the three groups(P＞0.05). With an area under the ROC curve of R2*=22.7hz as diagnose critical points, the sensibility was 93.3%, the specificity was 100%, and the accuracy was 0.981 in the prediction of the kidneys with acute rejection. There were statistic significance for cortical standardized $ADC_{0\text{-}100}$,$ADC_{0\text{-}800}$within groups(P<0.05), however no statistic significances were found for cortical standardized $ADC_{0\text{-}100}$, $ADC_{0\text{-}800}$ between group A and B; while no statistic significances were found for medullary standardized $ADC_{0\text{-}100}$, $ADC_{0\text{-}800}$ among three groups(P＞0.05). With an area under the ROC curve of $ADC_{0\text{-}100}$=1.249、$ADC_{0\text{-}800}$=1.122 as diagnose critical points, the sensibility was 83.3% and 86.7%, the specificity was 91.1% and 92.3%, and the accuracy was 0.947 and 0.978 in the prediction of the transplanted renals with acute rejection, respectively.

Conclusion： BOLD and DWI is of important value in the early diagnosis of renal acute rejection, which can provide reliable imaging evidence for later treatment.

[**Key words**] Transplanted Kidneys; Acute Rejection; BOLD; DWI

前瞻性人体移植肾急性排斥 BOLD 与 DWI 早期诊断价值

目的 探讨 BOLD_R2*与 DWI_ADC 值人体肾移植急性排斥早期诊断价值。

方法 随机选取正常原位肾 33 例(A 组)、正常移植肾 34 例(B 组)、急性排斥移植肾 15 例(C 组)为研究对象，应用 3.0T 扫描仪 BOLD 及 DWI 序列扫描所有志愿者，将图像输至工作站分析处理。比较三组肾皮质、髓质 R2*及与肌肉标准化 ADC0-100、ADC0-800 值差异性，P＜0.05 为有统计学差异。以病理为“金标准”，评价髓质 R2*及与肌肉标准化皮质 ADC0-100、ADC0-800 值鉴别急性排斥移植肾与移植正常肾、正常原位肾诊断效能。

结果 (1)三组间肾髓质 R2*差异有统计学意义，两两比较发现 C 组 R2*明显低于与 A、B 组，A 与 B 组间无统计学差异；三组间肾皮质 R2*差异无统计学意义。以病理为标准，髓质 R2*=22.7hz 为界值，BOLD_R2*区别急性排斥与移植正常肾、原位正常肾 ROC 曲线下面积为 0.981,SE 和 SP 分别为 93.3%和 100%。(2)三组间肾皮质标准化 ADC0-100、ADC0-800 值有统计学意义，两两比较除 A 与 B 组间差异无统计学意义外其余组间有统计学意义。三组间髓质 ADC0-100、ADC0-800 值无统计学意义。以病理为标准，取 1.249、1.122 为界值，标准化皮质 ADC0-100、ADC0-800 诊断急性排斥移植肾 ROC 曲线下面积分别为 0.947、0.978，SE、SP 分别为 83.3%、86.7%，91.1%、92.3%。

结论 BOLD 与 DWI 在肾移植急性排斥早期诊断中有重要价值，可为后期治疗提供可靠影像依据。

【关键词】移植肾；急性排斥；血氧水平依赖成像；扩散加权成像

摘自《中国 CT 和 MRI 杂志》

解放军第 303 医院

节食减肥是许多女孩子的首选，那么节食减肥靠不靠谱呢？我想绝大部分人减肥的目的是拥有更好的体态和匀称的身材，而不是简单的瘦成一道闪电，或者退一步讲体重不过百吧。下面，且听我一一道来关于减肥那些事。

为啥节食减肥不靠谱

日常卡路里消耗

正常成年女性一天什么都不做的基础代谢率大概是 1200 卡，我们摄入的一顿饭基本是 300-400 卡，那么这样说我们的三餐正常饮食是不会有多余的卡路里导致发胖的。

肌肉与脂肪

那许多人会说了，那我每天少吃或者不吃是不是就可以靠基础代谢减轻体重呢？长期节食确实会燃烧一部分的脂肪，但是在更大程度上会消耗掉肌肉。当摄入不足时，机体会通过分解自身来维持功能，那么是谁首当其冲呢？如你所愿，并不是脂肪组织而是肌肉组织，因为肌肉存在糖元并且它是一个高消耗能量的承担者所以被舍弃，而脂肪组织能耗很少足以保存。在此之后，你就失去了肌肉，身体就会变得松垮而不再结实紧致。另外，同样重量的肌肉和脂肪组织，体积可以达到 1:3 的效果，肌肉含量更高的人看起来会更加苗条，体态会更加匀称。

运动增肌

肌肉消耗能量高，换句话说我们可以增加肌肉，这样就不用担心发胖而过分约束自己的摄入。那么建议女孩子进行一些舒缓的有氧运动，如慢跑，游泳，骑自行车等。

降低基础代谢率

节食之后，肌肉被消耗，机体基础代谢率下降，那么原先的节食量将被饱和，只有采取更少的摄入。如果你没有意识到这个问题，那么你所摄入的已经超过了你的基础代谢率，脂肪就慢慢囤积起来了。

因此，节食减肥是不可靠的呀，妹子们还是走出宿舍，放下购物 App，在运动场塑造完美身材，偶遇高富帅，走上人生巅峰吧！