

· 临床论著 ·

膝内翻畸形程度对全膝关节置换术的影响[△]郑永智¹, 陈飞飞², 康乾¹, 晋春阳¹, 王若秦¹

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摘要: [目的] 探讨膝内翻畸形程度对全膝关节置换术 (total knee arthroplasty, TKA) 疗效的影响。[方法] 回顾性分析 2020 年 4 月—2022 年 4 月 86 例在本院行 TKA 的膝骨关节炎患者的临床资料。根据术前髋-膝-踝角 (hip-knee-ankle angle, HKAA), 54 例为轻度内翻 ($\leq 10^\circ$), 32 例为中度内翻畸形 ($10^\circ \sim 20^\circ$)。分析下肢力线与临床评分的相关性。[结果] 两组均顺利手术, 无严重并发症, 两组间围手术期指标的差异均无统计学意义 ($P > 0.05$)。随时间推移, 两组术后 VAS 评分、WOMAC 评分、膝伸-屈 ROM 及 HSS 评分均显著改善 ($P < 0.05$)。术前及术后 3 个月轻度组 VAS、HSS、WOMAC 及膝伸-屈 ROM 均显著优于中度组 ($P < 0.05$)。影像方面, 轻度组术前股胫角 (femorotibial angle, FTA) $[(190.4 \pm 5.6)^\circ \text{ vs } (196.3 \pm 6.1)^\circ, P < 0.001]$ 、胫骨近端内侧角 (medial proximal tibial angle, MPTA) $[(73.4 \pm 3.8)^\circ \text{ vs } (67.2 \pm 3.1)^\circ, P < 0.001]$ 、胫骨平台后倾角 (posterior tibial slope, PTS) $[(8.5 \pm 1.9)^\circ \text{ vs } (7.2 \pm 1.6)^\circ, P = 0.002]$ 、机械轴偏移 (mechanical axis deviation, MAD) $[(38.4 \pm 1.5) \text{ mm vs } (40.6 \pm 2.1) \text{ mm}, P = 0.002]$ 均显著优于中度组。末次随访时, 轻度组的 FTA $[(174.3 \pm 4.1)^\circ \text{ vs } (180.7 \pm 5.3)^\circ, P < 0.001]$ 、MPTA $[(87.6 \pm 5.3)^\circ \text{ vs } (79.3 \pm 4.5)^\circ, P < 0.001]$ 显著优于中度组 ($P < 0.05$), 但两组间 PTS、MAD 的差异无统计学意义 ($P > 0.05$)。Pearson 相关性分析显示, 术前 FTA 与 VAS 评分 ($r = 0.416, P = 0.014$)、WOMAC 评分 ($r = 0.545, P < 0.001$) 呈显著正相关, 与 ROM 呈显著负相关 ($r = -0.545, P < 0.001$); 术前 MPTA 与 VAS 评分 ($r = -0.452, P = 0.008$)、WOMAC 评分 ($r = -0.578, P < 0.001$) 呈显著负相关, 与 ROM 呈显著正相关 ($r = 0.614, P < 0.001$)。末次随访 FTA、MPTA 与 VAS 评分、WOMAC 评分、ROM 均无显著相关性 ($P > 0.05$)。[结论] 术前膝内翻畸形程度对 TKA 术后下肢力线影响显著, 但对膝关节活动度、膝关节功能的影响较小。

关键词: 膝骨关节炎, 全膝关节置换术, 下肢力线, 内翻畸形, 程度

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Impact of preoperative knee varus deformity on total knee arthroplasty // ZHENG Yong-zhi¹, CHEN Fei-fei², KANG Qian¹, JIN Chun-yang¹, WANG Ruo-qin¹. 1. Department of Joint Surgery, Henan Provincial Hospital of Traditional Chinese Medicine, Henan University of Traditional Chinese Medicine, Zhengzhou 450002, China; 2. Department of Tuberculosis, Chest Hospital of Henan Province, Zhengzhou University, Zhengzhou 450000, China

Abstract: [Objective] To investigate the effect of preoperative knee varus deformity on the outcomes of total knee arthroplasty (TKA). [Methods] A retrospective study was conducted on 86 patients who received TKA for knee osteoarthritis in our hospital from April 2020 to April 2022. According to the preoperative hip-knee-ankle angle (HKAA), 54 patients had mild knee varus ($\leq 10^\circ$), while the remaining 32 patients had moderate knee varus deformity ($10^\circ \sim 20^\circ$). The correlation between lower limb alignment and clinical score was analyzed. [Results] All patients in both groups had TKA performed successfully without serious complications, and with no significant differences regarding perioperative data between the two groups ($P > 0.05$). The VAS, WOMAC and HSS scores, as well as knee extension-flexion ROM significantly improved in both groups over time postoperatively ($P < 0.05$). The mild group proved significantly better than the moderate group in terms VAS, WOMAC and HSS scores, as well as knee extension-flexion ROM before operation and 3 months postoperatively ($P < 0.05$). Radiographically, the mild group proved significantly superior to the moderate group in terms of femorotibial angle (FTA) $[(190.4 \pm 5.6)^\circ \text{ vs } (196.3 \pm 6.1)^\circ, P < 0.001]$, medial proximal tibial angle (MPTA) $[(73.4 \pm 3.8)^\circ \text{ vs } (67.2 \pm 3.1)^\circ, P < 0.001]$, posterior tibial slope (PTS) $[(8.5 \pm 1.9)^\circ \text{ vs } (7.2 \pm 1.6)^\circ, P = 0.002]$, mechanical axis deviation (MAD) $[(38.4 \pm 1.5) \text{ mm vs } (40.6 \pm 2.1) \text{ mm}, P = 0.002]$ before TKA; additionally FTA $[(174.3 \pm 4.1)^\circ \text{ vs } (180.7 \pm 5.3)^\circ, P < 0.001]$, MPTA $[(87.6 \pm 5.3)^\circ \text{ vs } (79.3 \pm 4.5)^\circ, P < 0.001]$ regardless of that there was no significant difference in PTS and MAD between the two groups ($P > 0.05$) postoperatively. As results of Pearson correlation analysis, preoperative FTA was significantly positively correlated to VAS scores ($r = 0.416, P = 0.014$) and WOMAC scores ($r = 0.545, P < 0.001$), whereas negatively correlated with