SCIENTIFIC PAPER

Range of Motion after Total Knee Replacement for Osteoarthritis

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ABSTRACT

Objective: A retrospective study was performed in a general hospital to evaluate the range of motion after total knee replacement for osteoarthritis.

Patients and Methods: Knee motion after total knee replacement for osteoarthritis performed from January 1996 to June 2001 was evaluated.

Results: Flexion contracture was 1.5° or less at 1 year after operation for 91 knees with preoperative flexion contracture less than 15°. Twenty three knees had preoperative flexion contracture not less than 15°. After posterior stabilising total knee replacement, the flexion contracture improved to 3.5° at 1 year in 13 knees with good flexion, whereas there was residual 11° flexion contracture in the 10 knees with additional poor knee flexion. Seventeen knees had preoperative flexion less than 90°, with the average knee flexion at 1 year after posterior stabilising total knee replacement being 90°. For the 64 knees with satisfactory conditions, the average knee flexion at 1 year was 103.4° after posterior stabilising total knee replacement compared with only 95.0° after the 20 posterior cruciate retaining total knee replacements, given the comparable age and preoperative knee motion.

Conclusion: The preoperative range of motion of osteoarthritic knee predicted the postoperative range of motion.

Key Words: Flexion, Flexion contracture, Osteoarthritis, Range of motion, Total joint replacement

中文摘要

退化性關節炎在全膝關節置換術後的膝部活動
何相東、崔國榮

對1996年1月至2001年6月的膝部退化性關節炎，進行了全膝關節置換術後膝部活動的回顧性評估。91例術前屈曲彎曲小於15°者，其一年術後屈曲彎曲為1.5°以下。在後穩定全膝關節置換術中，23例術前屈曲彎曲不小於15°者，其中13例術前屈曲良好，其一年術後屈曲彎曲減至3.5°；另10例術前屈曲不良者，其一年術後屈曲彎曲為11°。17例術前屈曲小於90°者，其一年術後平均膝部屈曲大約是90°。64例膝部狀況滿意者，經後穩定全膝關節置換術後，其一年術後平均膝部屈曲為103.4°。在可比較年齡和膝部情況下，20例後十字韌帶保留全膝關節置換術，其一年術後平均膝部屈曲只能達到95.0°。

INTRODUCTION

Knee motion requirement for satisfactory activities of daily living has been estimated to be 54° to 70° for level walking; 90° to 97° for descending stairs; 90° to 104° for climbing stairs, and 93° to 105° for rising from a chair.1,2 Using flexible electrogoniometry, gait and walking on slopes require less than 90° knee flexion while walking on stairs and the use of chairs require 90° to 120° flexion.4 Therefore, it is not surprising to see that knee flexion has a significant effect on the success of total knee replacement (TKR) in the knee rating score, walking ability score, stair climbing score, and pain score in the presence of flexion contracture.5 Indeed, patients with the lowest levels of function tended to have the TKR with the lowest flexion and vice versa.6 A retrospective study was performed in a general hospital to evaluate the knee range of motion after TKR for osteoarthritis. The