

# Evaluation of Expectations and Expectation Fulfillment in Patients Treated for Trapeziometacarpal Osteoarthritis

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**Purpose** To determine the main reasons why patients with trapeziometacarpal osteoarthritis (TMC OA) seek treatment, their pretreatment expectations for the final outcome, fulfillment after one year, and predictors of fulfillment of the expectation.

**Methods** We included 163 patients with TMC OA. They filled out questionnaires assessing expectations and functional status before and at 3, 6, and 12 months after treatment.

**Results** Pain reduction was the most important reason why 65% of all patients sought treatment, whereas 17% and 13% requested treatment to improve hand function and activities of daily living, respectively. No patients considered improved appearance of the hand to be the main reason for undertaking treatment. Expectations before treatment were anticipated to be totally or mostly fulfilled by 93% of surgically treated patients and 59% of patients treated with corticosteroid injection. After one year, 77% of surgically treated patients rated their expectations as completely or mostly fulfilled, compared with 24% of patients treated with corticosteroid injections. Including all variables before treatment in a best-fit regression model, fulfillment of patients' expectations could not be sufficiently predicted. However, with addition to the model of the outcome of pain at one year, 48% of the variance of fulfilled expectations could be accounted for.

**Conclusions** Patients with TMC OA predominantly visit hand surgeons seeking treatment to reduce pain, whereas function and aesthetics have minor roles. Based on variables before treatment, no prediction can be made regarding whether expectations will be fulfilled after treatment because residual pain at one year contributes considerably to the variance in fulfilled expectations. Clinicians should assess patients' expectations before treatment and explain realistic treatment outcomes to obtain best treatment results. (*J Hand Surg Am.* 2015;40(3):483–490. Copyright © 2015 by the American Society for Surgery of the Hand. All rights reserved.)

**Type of study/level of evidence** Therapeutic II.

**Key words** Carpometacarpal joint, expectations, osteoarthritis, thumb.

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THE IMPORTANCE OF PATIENTS' expectations for treatment of musculoskeletal disorders is frequently emphasized.<sup>1–3</sup> Expectations are the patient's general anticipation or belief that a desired outcome follows treatment.<sup>3,4</sup> Defining the effect of patient expectations on outcome after surgery may improve patients' experience and enhance communication between surgeons and their patients.<sup>5</sup> Furthermore, patient satisfaction depends not only on functional outcome after treatment but also on

psychological factors such as fulfilled expectations.<sup>1</sup> Investigations conducted on patients after carpal tunnel release,<sup>6,7</sup> hip or knee arthroplasty,<sup>8–15</sup> acute low back pain,<sup>16</sup> spine surgery,<sup>2,17</sup> and treatment for musculoskeletal pain<sup>3</sup> showed that fulfilled expectations are associated with patient satisfaction and that preoperative expectations could be used to predict treatment outcome.<sup>2,8,9</sup> In addition, patients undergoing hip arthroplasty with poor functional abilities before intervention often had elevated expectations leading to overall disappointment with the treatment results.<sup>10</sup> The introduction of questionnaires assessing the expectations of patients undergoing knee or hip surgeries helped guide and educate these patients and improve the clinician's ability to assess functional outcome and patient satisfaction.<sup>18,19</sup> However, there is a lack of studies investigating the impact of preoperative expectations on outcome after hand surgery.<sup>6</sup>

The purpose of our study was to determine the main reasons why patients with TMC OA seek treatment, their expectations before treatment, expectation fulfillment over a 12-month posttreatment period, and factors determining the fulfillment of expectations.

## MATERIALS AND METHODS

Between September 2011 and November 2012, 163 patients with radiographically confirmed TMC OA who received either corticosteroid injection or surgical treatment (trapeziectomy with ligament reconstruction and tendon interposition) were included in the study. Exclusion criteria were diseases other than TMC OA as the main condition at the time of clinical consultation, rheumatoid arthritis, concomitant surgery on other digits, legal incompetence, poor general health condition precluding study participation, prior inclusion in this study for the contralateral hand, and insufficient comprehension of the German language to complete the questionnaires. The participating hand surgeons informed all eligible patients. Those who agreed to participate gave written informed consent and were consecutively enrolled. The analysis of patient expectation was part of a prospective cohort study evaluating the outcomes of treatment for TMC OA that was approved by the local ethics committee.

### Treatment intervention

The treatment strategy for each patient was based on the final decision made by the surgeon after discussion with the patient. The dose and frequency of corticosteroid injection therapy were individually defined for each patient by the treating surgeon. The surgical intervention involved trapeziectomy with ligament reconstruction and tendon interposition. Additional procedures

such as carpal tunnel release and arthrodesis of the first metacarpophalangeal (MCP) joint were also performed when required. Patients who initially received corticosteroid injection were given the option at any time during primary treatment to undergo surgical treatment. Eight patients who initially opted for corticosteroid injection decided to undergo surgery during the inclusion period. These patients were re-enrolled and again considered to be part of the surgical group for the final analysis. For patients who were lost to follow-up, we analyzed all available data until dropout.

### Clinical and patient-rated assessments

Before treatment, we collected sociodemographic data including age, sex, presence of OA in other joints, family medical history, duration of thumb symptoms, number of previous injections, smoking, alcohol consumption, and whether the dominant hand was affected.

We took standard radiographs of the hand before treatment and classified the severity of OA according to Eaton and Glickel.<sup>20</sup> An independent examiner assessed patients before treatment and 3, 6, and 12 months afterward. For the clinical examination, key pinch and active first MCP joint extension-flexion was measured in a standardized sitting position using a digital pinch gauge and goniometer (E-LINK, Biometrics Ltd, Gwent, United Kingdom), respectively, and active thumb opposition was evaluated using the Kapandji index.<sup>21</sup>

Patient functional status was assessed with the Michigan Hand Outcomes Questionnaire (MHQ)<sup>22</sup> and the Short Form-12 (SF-12)<sup>23</sup> before treatment and after 3, 6, and 12 months. The MHQ consists of 37 items categorized into 6 subscales; scores range from 0 to 100 with higher scores indicating better performance, except for the pain subscale, in which a higher score denotes more pain. The MHQ was found to have good reliability, validity, and responsiveness in assessing patients with TMC OA.<sup>24</sup>

The SF-12 is a 12-item general quality of life survey assessing patient physical and mental health, which is closely based on the well-established SF-36.<sup>23</sup> Final standardized SF-12 mental and physical health scores were obtained. The possible range is from 0 to 100; higher scores represent a better health state and the norm value is at  $50 \pm 10$ .<sup>25</sup> The SF-36 has been used to evaluate patients with TMC OA and shows sound measurement properties in this population.<sup>26</sup>

### Patient expectations

Two questionnaires were developed based on those of Hudak et al<sup>27</sup> and Kadzielski et al,<sup>6</sup> which assessed preoperative expectations and satisfaction of patients after carpal tunnel release. The before-treatment

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