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Health-Related Quality of Life and Functional Ability of Patients with Rheumatoid Arthritis: A Study from a Tertiary Care Hospital in Thailand

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ABSTRACT

Objectives: To assess the health-related quality of life and functional ability of patients with rheumatoid arthritis (RA) using the Thai EuroQol five-dimensional questionnaire (EQ-5D) and the Thai Health Assessment Questionnaire (HAQ), and to analyze correlations between the scores from both questionnaires. **Methods:** This cross-sectional study was conducted among 221 patients with RA aged 18 years or older at a tertiary care hospital in Thailand. Data collection methods included individual patient interviews and data gathering from medical records. The correlations between the EQ-5D and HAQ scores were analyzed using Spearman's rank correlation coefficients. **Results:** Most patients were female (78.3%), aged 41 to 60 years (57.0%), having had RA for 12 to 60 months (43.0%), and being in an active disease state (60.6%). From the EQ-5D, most patients reported no problems in each dimension, except for mobility and pain/discomfort. For the HAQ, most patients reported no difficulty for

almost all activities, except for arising. The medians (interquartile ranges) for the EQ-5D utility, EuroQol visual analogue scale (EQ VAS), and HAQ scores were 0.65 (0.55–0.73), 70 (50–80), and 0.25 (0.00–0.81), respectively. The Spearman's rank correlation coefficients were 0.42 for the EQ-5D utility and EQ VAS scores ($P = 0.01$), -0.65 for the EQ-5D utility and HAQ scores ($P < 0.001$), and -0.39 for the EQ VAS and HAQ scores ($P < 0.001$). **Conclusions:** The health-related quality of life and functional ability of most patients in our study were partially affected by the disease. The EQ-5D and HAQ scores significantly correlated at a moderate to strong level.

Keywords: EQ-5D, functional ability, HAQ, HRQOL, rheumatoid arthritis.

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Introduction

Rheumatoid arthritis (RA) is an autoimmune disease affecting an estimated 0.4% to 1.3% of the world's population [1]. According to data from rural areas, the prevalence of RA in Thailand in 1998 was 0.12% [2]. Being a disease that not only causes joint destruction and deformity but can also affect the entire body, RA can be associated with limited functional ability, a high risk of anxiety and depression, and significant morbidity and mortality [3–5]. Given the chronic nature and complexity of RA, a multifaceted approach is required for its successful management. Increasingly, more emphasis has been placed on incorporating patient-reported outcomes, especially health-related quality of life (HRQOL), into patient assessment [4]. HRQOL has been recommended as an important outcome in RA, besides laboratory tests and survival. An assessment of HRQOL will provide health care professionals with a better understanding of the effects of RA and its treatment on the patients from the patients' perspective [6].

In an assessment of HRQOL in patients with RA, both generic and RA-specific instruments can be used. The generic quality-of-life instruments previously used in RA assessment included the following: 1) short form 36 health survey, 12-item short form health survey, and six-dimensional health state short form; 2) World Health Organization Quality of Life-BREF; and 3) EuroQol five-dimensional questionnaire (EQ-5D). Validated Thai versions of these three instruments are available. With regard to the RA-specific QOL instruments, a number of instruments are currently available, with the Rheumatoid Arthritis Quality of Life questionnaire being the instrument with the strongest positive evidence [7]. Nevertheless, a Thai version of this instrument is currently unavailable.

Various studies have been conducted to assess HRQOL in patients with RA using the EQ-5D. For example, a survey study by Wolfe and Hawley [8] among 1372 patients in the United States found a good level of HRQOL with means of 0.57 ± 0.25 and 0.67 ± 0.19 for the EQ-5D utility score and the EuroQol visual analogue scale (EQ VAS) score, respectively [8]. The study by Hoshi et al. [9]

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in Japan revealed that the factors affecting HRQOL among patients with RA were functional ability, sex, age, and disease duration. Papagiannopoulou et al. [10] assessed HRQOL in patients with moderate to severe symptoms receiving adalimumab in Greece and found that most patients reported moderate problems in the dimensions of mobility (81%), self-care (61.9%), usual activities (81%), and pain/discomfort (42.9%), and severe problems in the dimension of anxiety (14.3%). In addition, Kievit et al. [11] assessed the long-term effectiveness and safety of a 3-month therapy with tumor necrosis factor–blocking agents in 1560 Dutch patients with RA. After the 5-year follow-up period, the mean EQ-5D utility score of the patients increased from 0.56 ± 0.3 to 0.70 ± 0.2 , demonstrating an improved HRQOL in patients receiving the tumor necrosis factor–blocking agents.

To our knowledge, a limited number of HRQOL studies have been conducted among patients with RA in Thailand. The findings from other countries probably cannot be fully applicable to Thai patients because of differences in the culture and environment. This study therefore aimed to assess the HRQOL and functional ability among Thai patients with RA using the Thai versions of the EQ-5D and the Health Assessment Questionnaire (HAQ), and also to analyze the correlations between the scores of the two instruments, using a tertiary care hospital as a case study. The results from this study may contribute to a better understanding of the impact of RA on Thai patients' lives and would at least fill a knowledge gap in RA management. In addition, because the incorporation of patient-reported outcomes in treatment planning should contribute to more effective disease management, our results should lay the foundation for an improvement in the care of patients with RA at the study hospital and provide a reference point for other health care settings, at least for those at a similar level of care.

Methods

Study Design and Data Collection

The study was a cross-sectional survey of patients diagnosed with RA at the rheumatism clinic of Uttaradit Hospital, a tertiary care hospital in Thailand. To be included in this study, patients had to fulfill the following criteria: 1) should be 18 years or older, 2) should be able to speak and understand the Thai language, 3) should be willing to participate in the study, and 4) should have received RA treatment for at least 1 month before the data collection period. Pregnant patients and those with mental illnesses were excluded from this study. The number of participants was calculated using the Taro Yamane formula [12]. Because the total number of patients with RA at the hospital was 295 (from the hospital database), the calculated sample size was 170. To deal with the potential loss of data, a 30% increase was added to the calculated number and hence the targeted sample size was 221.

Data were collected from July 2014 to December 2014 through individual patient interviews and data gathering from patient medical records. The protocol of this study was approved by the Ethics Committee for Human Research of the Faculty of Pharmacy, Silpakorn University, and Uttaradit Hospital. All participants provided written informed consent before the study.

Study Instruments

Altogether three instruments were used in this study, namely, the Thai version of the EQ-5D, the Thai version of the HAQ, and a self-developed patient information questionnaire.

The Thai EQ-5D [13,14]

The EQ-5D is a standardized, generic HRQOL instrument comprising two parts. The first part divides health into the following five dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each dimension is divided into three levels of severity: no problems (level 1), some problems (level 2), and extreme problems (level 3). The health state generated from these dimensions can be converted to a single summary score (EQ-5D utility score). The possible values of the EQ-5D utility score derived from the time trade-off technique with the Thai value set range from -0.454 to 1.000 [14], where a value less than 0 indicates a health state worse than death, 0 indicates death, and +1 indicates perfect health. The second part of the EQ-5D is the EQ VAS, ranging from 0 (worst imaginable health) to 100 (best imaginable health).

The EQ-5D was selected to measure HRQOL in this study because of its widely accepted use, its apparent applicability to RA as demonstrated in previous studies [15,16], and its brevity, which limits burden on the participants. Given that it is a generic instrument, it allows cross-comparison between our results and those from the general population and patients with other diseases. Furthermore, the Thai version of the EQ-5D is available with documented validity and reliability [14,17].

The Thai HAQ [18]

The HAQ is an instrument commonly used in assessing the level of functional ability of patients with RA. Its eight dimensions include dressing and grooming, arising, eating, walking, hygiene, reach, grip, and other activities. In each of its 20 items, the ability to perform an activity is rated on a four-level scale, in which the score ranges from 0 (no difficulty) to 3 (unable to do). The computed functional ability score ranges from 0 (no functional impairment) to 3 (complete impairment).

The HAQ was chosen in this study because it was developed as a comprehensive measure for patients with arthritis, especially RA [19,20]. In addition to its widely accepted use in clinical practice, the Thai HAQ has demonstrated satisfactory psychometric properties among patients with RA [6,21].

The patient information questionnaire

This instrument was self-developed by the researchers to obtain patients' demographic and disease information including age, sex, occupation, duration of RA, disease status, comorbidities, relevant laboratory findings, and list of medications for RA.

Statistical Analyses

The data were presented as percentages, mean (SD), and/or median (interquartile range [IQR]), depending on the type of data and their distribution. Calculation of the EQ-5D utility score was based on the time trade-off technique. Because of the non-normal distribution of the EQ-5D and HAQ scores, comparisons of the scores among patients with different demographic/disease factors (including sex, age range, disease state [active/inactive], disease duration range, number of prescribed medication groups, and presence of comorbid disease) were performed using the Mann-Whitney *U* test and the Kruskal-Wallis test. Post hoc analyses were conducted using Mann-Whitney *U* tests with Bonferroni correction [22]. Correlations between the EQ-5D and HAQ scores were determined using Spearman's rank correlation coefficient, which was interpreted on the basis of the following criteria: 0.10 to 0.29, small; 0.30 to 0.49, moderate; and 0.50 or higher, strong [23]. To ascertain the instrument reliability among the study samples, Cronbach's alpha coefficients and correlated item-total correlations for the Thai EQ-5D and the HAQ were also investigated in this study. A Cronbach's alpha coefficient of more

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