A Comparison of Techniques for Eliciting Patient Preferences in Patients with Benign Prostatic Hyperplasia

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Introduction

A primary goal in treating benign prostatic hyperplasia (BPH) is improving the patient's quality of life (QoL). It is therefore increasingly common for clinical trials of a new treatment to include at least one BPH-specific QoL questionnaire. While these questionnaires can be invaluable for quantifying QoL changes associated with symptom improvement, most do not capture the impact of treatment side effects. In evaluating alternative treatments for BPH, both the expected QoL improvements and the nature and probability of side effects are relevant. Deciding among alternative treatments requires simultaneous consideration of the magnitude and probabilities of multiple outcomes. For both patient and physician, this is a complex and difficult cognitive task. A possible strategy for facilitating such decisions is to elicit patient valuations for each individual treatment using a measure that summarizes both positive and negative outcomes in a single metric. This might be accomplished using any of several available preference or utility measures.

One method of obtaining patient preferences is to measure QoL and then convert the QoL scores to utility values using normative data. The Health Utilities Index (HUI) and the EuroQol exemplify this approach. A second method involves asking subjects a series of questions to directly elicit their own valuations of alternative health states. Time trade-off (TTO) and standard gamble are two of the most commonly used techniques in this category (Torrance, 1972).

The main objective of this pilot study was to compare the HUI, EuroQol, and TTO to identify the most suitable technique for collecting preference data from BPH patients in a clinical trial. The standard gamble method of collecting utilities was not assessed in the present study, as exploratory interviews conducted in a published study of BPH subjects (Krumins et al, 1988) suggested that TTO was preferable to standard gamble. In considering the appropriateness of a measure for inclusion in a clinical trial, two critical factors are ease and consistency of

administration and sensitivity to change. This study therefore focused on these properties of the selected measures.

Methods

Survey Administration and Design

A convenience sample of 29 men with symptomatic BPH were recruited from three urology clinics in Sydney, Australia. After consenting to participate in the study, subjects were administered four instruments: International Prostate Symptom Score (IPSS;UK version), HUI, EQ-5D and TTO. The IPSS and HUI were self-administered at home; the EQ-5D and TTO were administered in a face-to-face interview at the urology clinic. To minimize interviewer bias, the same trained interviewer was used for all subjects. The interview began with a set of demographic questions, including time since BPH diagnosis, age, and history of acute urinary retention (AUR) and transurethral resection of the prostate (TURP) operations. Subjects then completed the EQ-5D and TTO. In the final portion of the interview, subjects were asked to indicate whether any of the written or verbal questions in the study had been difficult to answer. If the subject responded affirmatively, he was shown copies of the questionnaires and asked to indicate the difficult one(s). After the interview, the interviewer evaluated the subject's overall performance by completing a short questionnaire.

Utility Measures

This study used a variant of the McMaster HUI (III), which consists of 16 questions covering eight domains (vision, hearing, speech, ambulation, dexterity, emotion, cognition and pain). The score for each domain is converted to a utility value and an algorithm is then applied to reduce these to a single utility value between 0.00 and 1.00 (Feeny et al, 1995, Torrance et al, 1995).

The EuroQol-5D (EQ-5D) is based on five health domains (mobility, self-care, usual activies, pain/discomfort, and anxiety/depression). Normative data from the UK are used to convert

subjects' scores to utility values. The EQ-5D also includes a single item in which patients indicate their health status using a visual analogue scale, however, this item was not analyzed for the present study.

In TTO, subjects are given a choice between living out their lives in a specific symptomatic health state or living for a shorter time in perfect health. The goal of the task is to determine the patient's valuation of the symptomatic health state by determining how much time he would sacrifice in order to achieve perfect health.

In this pilot study, TTO was used to obtain utility values for the subject's current health state and for a hypothetical "worst case" BPH health state. The worst case health state was based on a description of a subject with an IPSS of 35, the score representing the most severe BPH symptoms (see Appendix for health state descriptions). Because both utility values were determined relative to the same anchor point (death), the difference between the two values could also be calculated. This provided a method for examining how utility values might change as symptoms improved.

Subjects were first trained in TTO using back pain as a practice scenario. For each of the two health states, subjects then performed the TTO task twice, first with a 10-year time frame and then a second time using a one-year time frame. The trade off for each scenario was a state of perfect health.

All analyses were performed using SPSS 7.5 for Windows.

Results

Demographics

The average age of the sample was 65 years. Nearly half (48.3%) had been diagnosed within the preceding 6 months. Only two subjects had experienced a complete urinary obstruction;

three had undergone TURP. Only one patient was taking medication for BPH at the time of the study.

IPSS scores ranged from 0-35, with a mean of 16.24 (SD= 7.95) Three subjects had an IPSS score in the "mild" range (0-7), 16 were "moderate" (8-19), and 10 were "severe" (20-35). Three subjects who were not native English speakers had difficulty completing the IPSS in its written form. However, these subjects were able to complete the written HUI and were able to complete the IPSS when an interviewer read the items. They were therefore retained in the analysis.

Preference Measures

All subjects completed the HUI and EQ-5D. One subject who was not a native English speaker was unable to comprehend the TTO questions as indicated by his consistent preference for symptomatic states over perfect health. Twenty-six subjects completed the TTO trials on "worst state BPH". All respondents indicated that the items in the HUI and EQ-5D were "very relevant" to them, while three indicated that they could not see the relevance of the TTO questions. Administration times also differed among the three techniques: on average, subjects required 31 minutes for the HUI, 25 minutes for TTO, and 10 minutes for the EQ-5D.

Means and standard deviations of utility scores elicited by each method appear in Table 1. The mean utility values were similar across the techniques studied. Those from the HUI , EQ-5D and 1 year TTO were strikingly similar. Preference values based on the 10 year TTO were somewhat lower, but correlated highly with those based on the 1 year timeframe. Although average utility values are similar, however, standard deviations indicate that utility values obtained using the EQ-5D and HUI were less variable than those obtained from TTO.

Relationship between IPSS and utilities

The relationship between IPSS and utility values was examined using Spearman correlations. Because higher IPSS scores reflect more severe symptoms, symptom scores and utility values should be inversely related. This was the case case for TTO values, which correlated with IPSS scores at -.49 (1 year) and -0.31 (10 year). Neither the HUI not the EQ-5D utilities appeared to be related to symptom scores as the correlations were .10 and –.02, respectively.

The mean TTO utility score for "worst state" BPH symptoms was .54 $\pm$ 0.07 (1 year) and 0.48 $\pm$ .06 (10 years). As Figure 1 illustrates, the more severe the patient's current state (the higher the IPSS), the smaller the difference between the current state and worst case utility values. IPSS and difference scores were correlated at –0.49 (1 year timeframe; $p<0.05$) and –0.59 (10 year timeframe; $p<.01$).

Discussion

In selecting a measure for collecting utilities from BPH patients in a clinical trial, two important considerations are ease of administration and sensitivity to change. Ideally, sensitivity would be evaluated using longitudinal data from a sample of patients on a treatment of known efficacy. The current study examined the relationship between utilities and symptom scores at a single timepoint to help determine how utility values might be expected to change under conditions in which symptoms improved. In this study, only TTO derived utility values were related to IPSS scores. This suggests that, of the techniques examined, the TTO method would be most likely to produce utilities that would be helpful in comparing alternative treatments.

Of the two timeframes used with the TTO technique, utility values derived using the 1-year time frame were more closely related to symptom scores. This is consistent with evidence that shorter time frames are more sensitive to changes in disease state (Buckingham et al, 1996). The 1-year time frame is also more appropriate given the average life expectancy of

the population of subjects with BPH, which.in this particular sample was 10 years (mean life expectancy -mean age= 75-65 years).

The results from this pilot study suggest that the majority of BPH patients are able to complete each of the instruments evaluated in the present study, although it appears that the TTO questions may be slightly more difficult. A practical consideration is that TTO has traditionally required a trained interviewer, which adds to the cost of data collection and, if multiple interviewers are required, also introduces the potential problem of interviewer bias. However, computer software for administering TTO has recently been developed and may represent a method for collecting these data more easily. For example, U-Titer is a computer based assessment technique that has been used to obtain TTO data in patients with prostate cancer, a sample of comparable age (Albertsen et al, 1998). The availability of this technology may facilitate the collection of TTO data in clinical trials.

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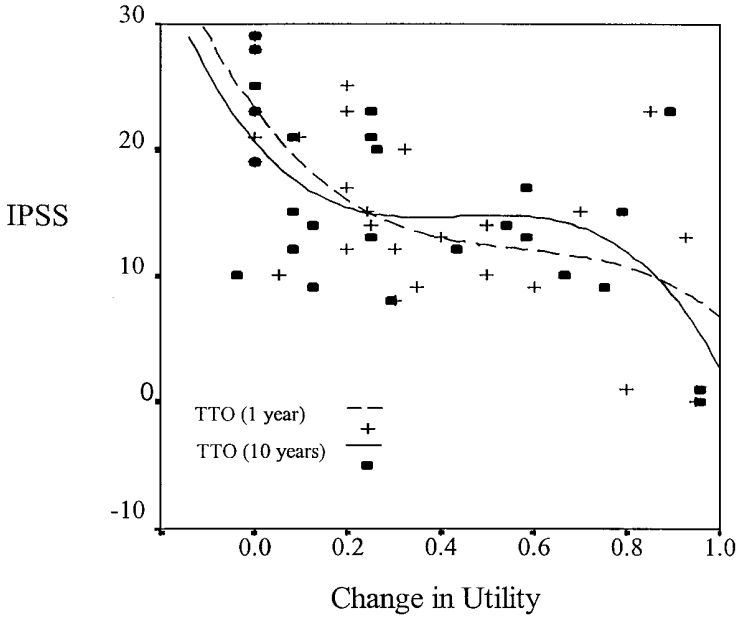
Table 1. Utility scores derived from the different instruments

Instrument	Health state	N	Mean	SD
HUI	Current	29	0.81	0.12
EQ-5D	Current	29	0.79	0.12
TTO(1 year)	Current	28	0.86	0.18
TTO (10 years)	Current	28	0.80	0.19
TTO (1 year)	Worst state BPH	26	0.54	0.33
TTO (10 years)	Worst state BPH	26	0.48	0.28

Figure 1.


30
20
10
0
-10
IPSS
TTO (1 year)
TTO (10 years)
0.0
0.2
0.4
0.6
0.8
1.0
Change in Utility

Appendix:

The following scenarios were presented to the participants in the study to determine time traded for either 1. Their current health status (scenario 1) or 2. A hypothetical health state where they were experiencing the worst symptomatic BPH (scenario 2). In each case, they could trade reduce their time spent in either health state to shift to a health state free of BPH symptoms (Scenario 3).

Scenario 1:

I would like you to consider that in this scenario your own health state in terms of your enlarged prostate is to be measured. So I'd like you to focus on the symptoms you are currently experiencing as a result of this condition. Consider how these symptoms affect your overall quality of life, such as the activities you perform from day to day, your relationship with other people and any limitations which the symptoms may place on you.

Scenario 2:

In this scenario you are asked to imagine that you had been diagnosed with an enlarged prostate and the following description indicates the symptoms you are experiencing.

At the present time you find it almost impossible to postpone urination and almost always find that when your urinating you have to push or strain to begin urination, have to stop and start again several times while urinating and that during urination you have a weak urinary stream. In addition, after you've finished urinating, you almost always have a sensation of not emptying your bladder completely and that you nearly always have to urinate again within two hours. Finally, each night you find that you have to get up 5 or more times to urinate.

Scenario 3:

In this scenario you have no health problems including no current symptoms typical of an enlarged prostate.