

6.5 Decision analysis for ranking medical therapies

Decision analysis is a quantitative approach that assesses the relative value of different decision options (Weinstein & Fineberg 1980). It is increasingly used to help develop policies about the management of groups of patients by providing information on which of two or more strategies for approaching a medical problem has the 'best' outcome or the most value.

When assessing treatment for heavy menstrual bleeding, efficacy and side effects should be taken into account but it is also important to consider the patient's own value judgments about the outcomes. For example, danazol is highly effective in reducing menstrual blood loss but also produces side effects which many women will not tolerate. A value judgment, or utility value, reflects the trade off an individual patient is prepared to make.

Decision analysis to assess the value of medical treatments for heavy menstrual bleeding required values to be assigned to the probabilities associated with 'response' to treatment, the side effects, profile, and general acceptability of treatment. The widely accepted definition of heavy menstrual bleeding is menstrual blood loss of greater than 80 ml per cycle. We defined "response" as reduction of MBL to the 'normal' range, ie <80 ml per cycle during the treatment cycle. We defined the probability associated with side effects as the proportion of patients who reported side effects. A comprehensive search for all relevant randomised controlled trials assessing the efficacy of medical treatments for heavy menstrual bleeding was performed and the probability values assigned for response and side effects were derived from the mean values from these trials. The utility value, or patient value judgment for each outcome was derived from the mean value assigned by 15 women with a complaint of heavy menstrual bleeding using the direct rating scale. The response and side effects probability values and the utility scores were recorded on the decision tree and a pilot analysis was performed. The full analysis will be published at a later date (Lethaby 1998).

The decision tree was analysed by a process of averaging out and folding back, working backwards from the tips of the branches to the root of the decision tree. When this process was completed, the drug with the highest expected value at the root of the decision tree represented the 'best' treatment option. In this way, 'ranking' of all medical treatments was possible, while still taking into account the acceptability of the intervention and the probability of side effects.