surate with a less dedicated technology. Thus this type of interactive decision aid, which provides a realistic and practical solution to the problem of achieving informed patient choice at low cost, could easily be incorporated into multiple access points for information such as those envisaged for NHS Direct Online.

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Randomised controlled trial of an interactive multimedia decision aid on benign prostatic hypertrophy in primary care

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See *Editorial* by Deyo

Abstract

Objective To determine whether a decision aid on benign prostatic hypertrophy influences decision making, health outcomes, and resource use.
Design Randomised controlled trial.
Setting 33 general practices in the United Kingdom.
Participants 112 men with benign prostatic hypertrophy.
Intervention Patients' decision aid consisting of an interactive multimedia programme with booklet and printed summary.
Outcome measures Patients' and general practitioners' perceptions of who made the decision, conflict over decisions, treatment choice and prostatectomy rate, American Urological Association symptom scale, costs, anxiety, utility, and general health status.
Results Both patients and general practitioners found the decision aid acceptable. A higher proportion of patients (32% *v* 4%; mean difference 28%, 95% confidence interval 14% to 40%) and their general practitioners (46% *v* 25%; 21%, 3% to 40%) perceived that treatment decisions had been made mainly or only by patients in the intervention group compared with the control group. Patients in the intervention group had significantly lower decisional conflict scores than those in the control group at 3 and 9 months (2.3 *v* 2.6; −0.3, −0.5 to −0.1, $P<0.01$ at 3 months). No differences were found between the groups for anxiety, general health status, prostatic symptoms, utility, or costs (excluding costs associated with the video disc equipment).
Conclusions The decision aid reduced decisional conflict in men with benign prostatic hypertrophy, and the patients played a more active part in decision making. Such programmes could be delivered cheaply over the internet, and there are good arguments for coordinated investment in them, particularly for conditions in which patient utilities are important.

Introduction

The rationale for decision aids is addressed in the accompanying paper.[1] Unlike hormone replacement therapy, prostate surgery is a "Rubicon" procedure—that is, once undertaken it cannot be reversed. In the United States, a pilot study on the impact of a programme to aid in decisions about benign prostatic hyperplasia showed a 40% decrease in surgery rates.[2]

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This finding was not replicated in a subsequent randomised controlled trial.[3]

We aimed to determine whether an interactive multimedia decision aid in primary care would promote greater involvement of patients in decision making and the influence that this had on treatment choices and health outcomes.

Participants and methods

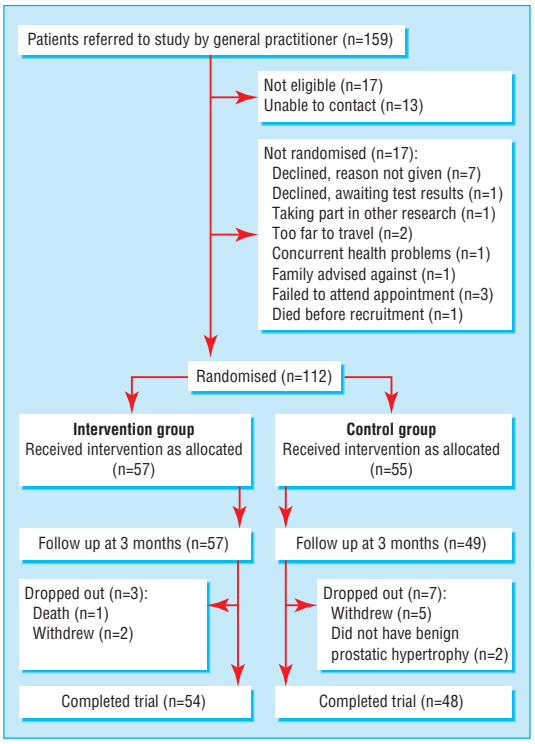
Patient recruitment

We invited general practitioners in two urban areas (Oxford and London), one suburban area (Harrow), and one semirural area (Thame and the Chilterns) to participate in our study.[1] We asked participating doctors to recruit men with benign prostatic hypertrophy opportunistically. The doctors were asked to retain their normal clinical practice in diagnosing or managing the condition but to refer patients to the study as soon as they were confident about the diagnosis.

Intervention

The intervention, developed by the Foundation for Informed Medical Decision Making,[4] comprised an interactive multimedia programme with booklet and printed summary. Information was obtained from studies by the Patient Outcome Research Team and other published trials.[1 5] Treatment options discussed were surgery (prostatectomy or transurethral prostatectomy), balloon dilatation of the prostate, drugs (α_2 blockers and 5α reductase inhibitors), and watchful waiting. Information comprised probabilities of the risks and benefits of each treatment, calculated on the basis of information on age, severity of symptoms, and general health entered by the patient at the beginning of the session. After viewing the programme the patients were given a summary of the information; a copy was also sent to their general practitioners.

As the programme used interactive video disc technology, since superseded by CD Rom and web based interactive programmes, we imported specialised hardware from the United States. Patients travelled to one of five sites, chosen for ease of access from referring practices, to view the programme in a private room. All the patients saw the core programme, lasting about 45 minutes; viewing optional sections for further information took up to 60 minutes more. A research nurse started the programme, taught the patient how to use it, and then withdrew.



Progress of patients through trial

Randomisation

Patients randomised to the control group received normal care from their general practitioner. The randomisation schedule was generated by computer. Allocations were sealed in opaque numbered envelopes, opened by the study nurse after collection of the baseline data.

Data collection

We collected baseline data before randomisation. Follow up data were collected by postal questionnaire from patients three and nine months after baseline. Outcome measures included personal details, patients' and general practitioners' perceptions of who made the decision about treatment, patient's satisfaction with the choice of treatment, decisional conflict scores,[6] choice of treatment and prostatectomy rate, health status and physical function (SF-36),[7] health states and valuation of health states (Euroqol EQ-5D),[8] anxiety,[9] and prostatic symptoms.[10] Patients in the intervention group completed a questionnaire immediately after viewing the programme. All patients were asked to see their doctor to reach a treatment decision.

Economic evaluation

We recorded the resources used by each patient over the trial period. The unit costs were attached to resource volumes to obtain a total cost per patient.

We measured utility with the Euroqol EQ-5D at baseline and at three and nine months. Valuations of health states were taken from the UK population

Table 1 Baseline characteristics of participants. Values are numbers (percentages) of men unless stated otherwise

Characteristic	Intervention group (n=57)	Control group (n=55)
Ethnicity (white)	53 (93)	52 (95)
Educational attainment:		
Up to secondary education	25 (44)	28 (51)
Beyond secondary education	32 (56)	27 (49)
Treatment choice:		
Watchful waiting	10 (18)	10 (18)
Prescribed drug by doctor	13 (23)	8 (15)
Referred to specialist	7 (12)	6 (11)
Let doctor decide	14 (25)	16 (29)
Unsure	13 (23)	15 (27)
Mean (SD) American Urological Association score	15.64 (6.57)	14.85 (7.10)
Mean (SD) age (years)	63.7 (8.4)	63.9 (8.4)
Mean (SD) decisional conflict:		
Uncertainty	3.2 (0.8)	3.0 (0.7)
Factors contributing to uncertainty	2.8 (0.15)	2.9 (0.5)
Mean (SD) Spielberger state trait anxiety inventory	33.93 (13.09)	32.01 (10.49)
Mean (SD) EQ-5D:		
Visual analogue scale	71.3 (21.5)	78.2 (13.9)
Tariff	0.83 (0.23)	0.84 (0.16)

tariff.[11] We conducted our economic evaluation from the perspective of the healthcare system. All costs are in pounds sterling at 1999 prices.

Sample size

A sample size of 160 patients (80 in each group) would have given us 90% power to detect a difference of 3.7 points (from 15 to 18.7) in the mean scores on the American Urological Association symptom scale for the two groups at the 5% level of significance. Allowing for a 30% dropout rate, we planned to recruit 210 patients.

Statistical analysis

We present the results for those who completed the assessment at nine months, as the intention to treat analysis did not alter the results. We performed Mann-Whitney U tests when data for outcome measures were skewed. We present the means and standard deviations for resource use and costs; confidence intervals around mean differences between study groups are based on *t* tests assuming unequal variances.

Results

Recruitment

Overall, 33 general practices agreed to participate, and 112 men were recruited between January 1996 and September 1998 (figure). The intervention and control groups were comparable at baseline (table 1).

Impact on decision making

Patients reacted positively to the decision aid. At three months, patients in the intervention group showed lower decisional conflict on all three subscales and on their total score (table 2); this significant difference was maintained at the final assessment (total score at nine months). A higher proportion of both general practitioners and patients perceived that treatment decisions had been made mainly or only by the patients in the intervention group (table 3).

General practitioners were positive about the decision aid; of 50 follow up consultations they said that the decision aid had helped in 46, made no difference in three, and hindered in one.

Anxiety and other health status outcomes

The anxiety scores were similar at the final assessment in the two groups. The amount of change in American Urological Association scores was not significantly different in the two groups (median change in score −1 in intervention group, −2 in control group; P = 0.8). We found no difference between the two groups in the trends over time in the EQ-5D responses nor in the SF-36 scores.

Economic evaluation

No significant differences were detected in resource volumes used per patient between patient groups. When costs of the video sessions were excluded, groups did not differ significantly in total or individual costs of the components (table 4).

Table 2 Decisional conflict score at three months. Values are means (SDs) unless stated otherwise

	Intervention group	Control group	Mean difference (95% CI)
Uncertainty	2.4 (0.8)	2.7 (0.8)	−0.3 (−0.6 to 0.0)
Factors contributing to uncertainty	2.3 (0.5)	2.7 (0.6)	−0.4 (−0.7 to −0.2)**
Perceived effective decision making	2.0 (0.4)	2.2 (0.6)	−0.2 (−0.4 to −0.002)*
Total decisional conflict score	2.3 (0.4)	2.6 (0.5)	−0.3 (−0.5 to −0.1)**

The decisional conflict scale contains three subscales that elicit uncertainty about choosing between alternatives, awareness of modifiable factors contributing to the uncertainty, and perceived effectiveness of decision making process. Higher scores indicate increased uncertainty in each subscale. Subscales can be combined to give a total decisional conflict score. Subjects with strong intentions to accept or decline a health intervention tend to lower scores and those who remain uncertain tend to higher scores.[12] *P<0.05. **P<0.01.

Table 3 General practitioners' and patients' perceptions of decision making at three months. Values are numbers (percentages) of patients unless stated otherwise

	Intervention group	Control group	% difference (95% CI)
General practitioners	**(n=48)**	**(n=49)**	
Who do you think made the treatment decision?:			
Mainly or only general practitioner	1 (2)	5 (10)	−8 (−18 to 1)
General practitioner and patient together	25 (52)	32 (65)	−13 (−33 to 6)
Mainly or only patient	22 (46)	12 (25)	21 (3 to 40)
	χ^2=6.458, df=2; P=0.04		
Patients	**(n=57)**	**(n=48)**	
Who do you think made the treatment decision?:			
Mainly or only general practitioner	5 (9)	4 (8)	1 (−10 to 11)
General practitioner and patient together	34 (60)	42 (88)	−28 (−44 to −12)
Mainly or only patient	18 (32)	2 (4)	28 (14 to 41)
	χ^2=13.078, df=2; P=0.001		

Table 4 Costs in pounds sterling (at 1998 prices) per patient, by allocation. Values are means (SDs) unless stated otherwise

Cost item	Intervention group (n=57)	Control group (n=48)	Mean difference (95% CI)
Doctor appointments	50.2 (26.9)	56.7 (40.4)	−6.5 (−20.1 to 7.2)
Urology consultations	23.8 (42.6)	30.9 (47.3)	−7.1 (−24.7 to 10.5)
Other consultations	2.0 (5.6)	3.0 (5.8)	−1.1 (−3.3 to 1.1)
Tests and investigative procedures	26.9 (36.9)	23.2 (25.8)	3.6 (−8.6 to 15.8)
Prostatectomies and referrals for prostatectomy	188.9 (555.8)	37.4 (259.1)	151.6 (−12.7 to 315.8)
Drugs	18.5 (90.1)	37.6 (86.7)	−19.1 (−53.4 to 15.2)
Total costs, excluding intervention	310.3 (602.0)	188.8 (300.4)	121.5 (−58.9 to 302.0)
Total costs, including intervention	594.1 (602.0)	188.8 (300.4)	405.4 (224.9 to 585.8)***

***P<0.001.

Discussion

The decision aid on benign prostatic hypertrophy seemed to increase patients' participation in decision making. The intervention was acceptable to both the patients and the doctors. The general practitioners were, however, likely to have had a prior interest in shared decision making. Recently, general practice registrars reported not being trained in the skills required to involve patients in clinical decisions.[12]

The intervention did not reduce costs. It is unlikely that the intervention reduced prostatectomy rates in a UK general practice population, but the study was underpowered to determine whether it caused an increase in the surgical rate.

Methodological considerations

The low recruitment rate prevented us from definitively determining that there was no increase in anxiety in the intervention group; however the intervention had no noticeable impact on anxiety. The low recruitment rate did not seem to be due to bias in recruiting patients into the trial, as we were unable to detect the non-referral of suitable patients attending the study practices. Moreover, as randomisation occurred after referral it would be unlikely to affect the

What is already known on this topic

Patients want more information about their condition and treatment options, and many want to play an active part in decision making

Decision aids improve patients' knowledge of their conditions and treatment options

What this study adds

The decision aids were highly acceptable to both the patients and their general practitioners

Decisional conflict was reduced in the intervention group

Patients who viewed the programme played a more active part in the decision making process and were less anxious than control patients

Such aids could be introduced throughout the NHS at relatively low cost by using the internet

main conclusion of the study. Although the technology used in these trials is now outdated, this does not affect the main findings, which relate to the interactive multimedia nature of the decision aid. The cost of delivering such programmes by the internet to standard personal computers would be small: equipment costs of £1500 over three years, with a low utilisation rate (two users per weekday) and lower space and staff costs commensurate with a less dedicated technology would bring the cost per session, excluding software, down from £177 to about £5 (£1 equipment, £2.50 staff time, £1.50 space).

Implications for the NHS

Internet sites for people seeking information on health care are proliferating, but many are of low quality. The NHS has the opportunity to provide high quality patient information and decision aids through outlets such as NHS Direct Online, with the potential to enhance patient care through informed patient choice. Accessible evidence based information for patients could play an important part in the drive to promote evidence based health care.

We thank Jo Burns for administrative support, research staff Liz Redfern, Sue Davis, Jean Catterson, and Marjorie Talbot, and the general practitioners. AH is currently based at the London School of Hygiene and Tropical Medicine, London WC1E 7HT.

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Nostalgia

As an Irishman living in Glasgow for the past 13 years, I'm as guilty as the next man of being nostalgic. First coined in 1678 by Johannes Hofer of Basel, the word nostalgia was derived from *nostos* (return to one's native land) and *algos* (pain or distress).[1] It was meant "to signify the pain which the sick person feels because he is not in his native land." Cullen in 1772 classified nostalgia as an abnormality of appetite, alongside bulimia and polydipsia. In England it was considered an illness that principally affected foreigners.

Recognised among the continental armies of the 18th century, it was sometimes referred to as "the Swiss disease." The first case in English medical literature was recorded in 1787 by a Dr Robert Hamilton, a regimental medical officer stationed at Tinmouth in the north of England.[2] The diagnosis of nostalgia and the resultant plea to the commanding officer allowed a young Welsh recruit named Edwards six weeks' leave at home.

It was still a recognised condition during the American civil war: for example, in the first year of conflict alone 5213 cases of nostalgia were recorded among the troops of the northern states.[3]

By the time of the trench warfare of 1914, nostalgia was no longer a recognised medical condition among the military medical establishment, even if it remained a strong sentiment.

Goodbye, Piccadilly,
Farewell, Leicester Square:
It's a long, long way to Tipperary,
But my heart's right there.
Tipperary Days

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