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Can Decision Support Help Patients with Spinal Stenosis Make a Treatment Choice? A Prospective Study Assessing the Impact of a Patient Decision Aid and Health Coaching

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Abstract

Study Design—A prospective, randomized study on patients with lumbar spinal stenosis who received a decision support intervention to facilitate their treatment choice.

Objective—To assess the impact of telephone health coaching in addition to a video decision aid compared to a decision aid alone for patients with spinal stenosis.

Summary of Background Data—Treatment options for lumbar spinal stenosis include surgical and non-surgical approaches. Patient decision aids (DAs) and health coaching (HC) have been shown to help patients make an informed treatment choice consistent with personal preferences.

Methods—Eligible patients with spinal stenosis were identified by an orthopaedic surgeon or non-surgical spine specialist. Consenting participants were randomly assigned to either: a video decision aid (DA) or a video decision aid plus health coaching (DA+HC). Patients completed baseline and follow up questionnaires at 2 weeks, and 6 months after the decision support intervention(s).

Results—Ninety eight patients were randomized to the DA+HC group and 101 to the DA only group; 168/199 (84%) patients completed responses at all time points. Both groups showed improved understanding of spinal stenosis treatments and progress in decision making after watching the DA ($p < 0.001$). At two weeks, more patients in the coaching group had made a treatment decision (DA+HC 74% vs. DA only 52%, $p < 0.01$). At 6 month follow up, the uptake of surgery was similar for both groups (DA+HC - 21%) had surgery vs. (DA only - 17%); satisfaction with the treatments received was similar for both groups (DA+HC, 84% satisfied vs. DA only, 85%).

Conclusions—These results suggest watching the video decision aid improved patient knowledge and reduced decisional uncertainty about their spinal stenosis treatment choice. The addition of telephone coaching helped some patients choose a treatment more quickly; 6-month decisional outcomes were similar for both groups.

Keywords

spinal stenosis; decision aid; health coaching; patient participation; patient preference

Introduction

Treatment options for lumbar spinal stenosis include surgical and non-surgical approaches. For most people, their treatment choice depends on how much they are bothered by their symptoms and how they feel about having surgery. Wennberg and colleagues define this as a “preference-sensitive” treatment decision¹ since individuals with the same clinical presentation may feel differently about their symptoms and how they view the potential benefits and harms of the different treatment options.

There is clear evidence that most patients want more information and greater involvement in their medical decisions², however not all patients share the same capacity for a larger role in their medical decision making. For example, people with limited health literacy may be less likely to be actively engaged in managing and making decisions about their own health care. Fortunately, interventions are available that can help patients become more confident to participate in their health care^{3, 4}.

One instrument that can help patients decide on a preference-sensitive treatment is a decision aid (DA). DAs provide evidence based information about the options and are designed to help patients consider their options in light of their own goals and preferences. These tools have been shown to improve patients’ knowledge and realistic expectations, lower decisional conflict, increase patient involvement in decision making, decrease the number of patients who remain undecided, and increase agreement between values and choice^{5, 6}.

Decision support in the form of coaching is another intervention that can help patients prepare for a consultation and deliberate about their options⁷. The overall goal of coaching is to support patients to be involved in decision making with their clinician and help them achieve a quality decision based on accurate information about the options and their own values and preferences⁸. A meta-analysis of studies of coaching found that coaching and question prompts that were intended to prepare patients for the clinical encounter improved knowledge and engagement in the decision process⁹.

Since 1998, the Spine Center at Dartmouth-Hitchcock Medical Center has been collaborating with the Center for Shared Decision Making (CSDM) to make decision aids (DAs) available to patients. In addition, health coaching is offered to patients upon request. In order to assess the impact of a decision aid and health coaching interventions we conducted a study for spinal stenosis patients.

The objective for this study was to assess the impact of telephone health coaching in addition to a video decision aid on the decision process for spinal stenosis patients considering treatment options. We were also interested to learn whether screening for low literacy and high decisional conflict could identify a subgroup of patients who are more

likely to benefit from coaching, and develop a process to provide health coaching to these patients.

Materials and Methods

We conducted a prospective, randomized trial for patients with lumbar spinal stenosis who were deliberating about their treatment choice. Eligible patients were identified by an orthopaedic surgeon or non-surgical spine specialist at a clinic appointment. Patients were sent in person to the Center for Shared Decision Making and were provided information about the study. Consenting patients complete a baseline questionnaire that included: participant gender (M/F), Spine Center clinician (surgeon/non-surgical specialist), and health literacy (low/other); stratifying for these factors, participants were randomly assigned using a computer generated permuted block randomization sequence to either:

- i) a video decision aid plus health coaching (DA+HC), or
- ii) a video decision aid (DA).

Patients completed baseline and follow up questionnaires after the decision support intervention(s), at 2 weeks, and 6 months. Clinical data were obtained by chart review at 6 months.

Decision Aid

All study participants were given a 39 minute video and accompanying booklet Shared Decision-Making program[®] entitled Spinal Stenosis: Choosing the right treatment for you to review at home. The DA, developed by the Informed Medical Decisions Foundation and produced by Health Dialog, Inc., explains spinal stenosis in easy to understand terms, and presents balanced, evidence-based information (including results from the multicenter SPORT trial¹⁰) about the benefits and risks of surgical and nonsurgical treatment options combined with implicit values clarification about the options.

Health Coaching

Participants randomized to the coaching arm of the study were contacted by phone within 2 weeks of watching the decision aid and participated in a structured interview using a coaching guide. The tool (based on the Ottawa Personal Decision Guide¹¹) is designed to help patients with their treatment decision process and includes sections on patient treatment intention, identifying knowledge gaps, identifying what is most important for the patient, support needs, and planning next steps.

Measures

Paper questionnaires were used to capture self-reported patient responses. The instruments included: patient demographic characteristics, treatment choice, and satisfaction with treatments. Stage of decision making¹² was captured before and immediately after viewing the DA and at 2 week follow-up (after coaching) using a single item - 'How far along are you with this decision?' with response categories: 1) I have not considered the options; 2) I am considering the options; 3) I am close to a choice; and 4) I have made a choice.

The decisional conflict scale¹³ was used to identify the factors that may make the decision difficult and help coaches guide patients in making a treatment plan. A single screening question – “Do you have trouble with medical forms?” - was used to identify individuals with low health literacy. This item has been shown to be an acceptable screener for inadequate health literacy.^{14, 15}

Patient knowledge of their treatment options was assessed at baseline, after viewing the video decision aid and at 2 week follow-up (which was after coaching in the group randomized to coaching) using 5 multiple choice questions and included questions about disease natural history, risk factors, potential benefits and limitations of treatment options (Appendix 1).

Statistical Analysis

A two-sided power calculation ($\alpha=0.05$, $\beta=0.85$) indicated approximately 110 per group would be needed to detect differences in patient knowledge and decisional conflict domains, allowing for a 10% loss to follow-up.¹³ Standard deviations for changes from baseline were derived from patients completing self-reported measures as part of usual care.

Descriptive summary statistics, including means and standard deviation for continuous variables and frequencies for categorical variables, were calculated. Differences in individual items for key subgroups (e.g. - health literacy, treatment received, stage of decision making, decisional regret) were examined with the Chi-square test to compare binomial proportions. Differences in mean scores for the total knowledge and decisional conflict scores were tested using two sided t-tests. Statistical analysis was conducted with SAS software, version 9.2 (SAS Institute).

Results

Of 199 patients with lumbar spinal stenosis initially enrolled, 168 patients (84%) completed outcome measures at all time points: 86 (51%) received the video DA only, and 82 (49%) received the DA + telephone coaching [Figure 1]. Patient characteristics (gender, referring provider, health literacy, age, education, marital, and work status) were comparable for both groups [Table 1].

Both groups (those that had the DA plus telephonic health coaching as well as those that received the DA only) showed similar improvements in understanding of spinal stenosis treatments immediately after watching the video ($p < 0.001$ pre-post; NS difference between groups) [Figure 2a]. Both groups also showed similar improvements in their decisional conflict scores (i.e. their uncertainty about their decision) after watching the video ($p = 0.01$ pre-post; NS difference between groups); at two weeks, both groups of patients showed an additional small but not statistically significant improvement in decisional conflict [Figure 2b].

After watching the DA, both groups reported similar gains in the % of patients reporting ‘Made a treatment decision’ [Table 2] (+15% DA+HC, +17% for the DA only group). At

two week follow up (after coaching), more patients in the coaching group had made a treatment decision (DA+HC 74% vs. DA only 52%, $p=0.003$).

At 6-month follow up, the uptake of surgery was similar for both groups (DA+HC, 21% had surgery) vs. (DA only, 17%); satisfaction with the treatments received was similar for both groups (DA+HC, 84% satisfied vs. DA only, 85%).

Discussion

These results suggest that watching the video decision aid improved knowledge of key facts and helped these patients by reducing decisional conflict about their treatment choice. The addition of telephone coaching helped some patients choose a treatment more quickly; however patient knowledge, decisional conflict, and satisfaction with treatments received were similar to those patients receiving decision aid only.

Prior to the start of the study, we hypothesized that a subset of patients with high decisional conflict or low health literacy would show improved decision process with the addition of health coaching. Studies have shown that when decisional conflict is high, patients are more likely to delay decision making, express regret with their decision, and blame their doctor for bad outcomes^{6, 16}. After watching the decision aid most patients (78%) had low (≤ 25) decisional conflict scores, suggesting these patients were comfortable about their levels of knowledge, values, and personal uncertainty. When decisional conflict is already low, additional health coaching may yield only small improvements. Few patients (~ 20%) were identified as “low health literacy” [Table 1] which may account for the lack of significant differences in decision process measures for this subset.

Additionally, many study participants had been living with a diagnosis of spinal stenosis for several years, and indicated they felt well-informed about their condition and treatment options. It is conceivable that a health coaching intervention would be more beneficial for newly diagnosed patients.

Table 2 illustrates the changes in patients’ reported stage of decision making over time; a clear pattern is evident, with patient’s moving from ‘not considering options’ toward having ‘made a treatment choice’. The structured telephonic health coaching appears to have helped patients arrive at a treatment decision more quickly.

With the benefit of hindsight, a few study limitations became apparent. It is conceivable that patients will be more likely to make a decision if they know that someone (i.e. – a health coach) has scheduled a specific date to check on progress. In addition, the DA only group did show progress in decision making and lower decisional conflict scores at 2 week follow-up (although the improvements were not as pronounced as the coaching group) suggesting that time to process is an important factor in arriving at a treatment decision. While some participant characteristics in this paper (predominantly Caucasian and well-educated) may not be representative of other regions, studies have shown that actively engaging patients in their healthcare decision making through the use of educational tools like decision aids and health coaching can be effective interventions for diverse populations.^{2,3,6}

Conclusions and Implications

During this 6-month study, patients showed improvements in decision progress, knowledge, and decisional conflict after watching a decision aid. Additional progress and certainty about the treatment decision was observed after a health coach intervention (at 2 week follow-up). These patients had similar uptake of surgical treatment and high levels of satisfaction with treatment choice for both study groups, which suggests that these patients were comfortable with the process as well as the outcome of the care they received.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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References

1. Wennberg JE, Fisher ES, Skinner JS. Geography and the Debate over Medicare Reform. *Health Affairs*. 2002; (Suppl Web Exclusives):W96–114. [PubMed: 12703563]
2. Coulter A. Partnerships with patients: the pros and cons of shared clinical decision-making. *Journal of Health Services Research & Policy*. 1997; 2:112–121. [PubMed: 10180362]
3. Coulter A, Ellins J. Effectiveness of Strategies for Informing, Educating, and Involving Patients. *British Medical Journal*. 2007; 335:24–27. [PubMed: 17615222]
4. Institute of Medicine. *Health literacy: a prescription to end confusion*. National Academies Press; Washington DC: 2004.
5. Lurie JD, Spratt KF, Blood EA, et al. Effects of viewing an evidence-based video decision aid on patients' treatment preferences for spine surgery. *Spine*. 2011; 36:1501–4. [PubMed: 21358485]
6. Stacey D, Bennett C, Barry M, et al. Decision aids for people facing health treatment or screening decisions. *Cochrane Db Syst Rev*. 2011:CD001431.
7. O'Connor AM, Stacey D, Légaré F. Coaching to support patients in making decisions. *British Medical Journal*. 2008; 336:228–229. [PubMed: 18244960]
8. Woolf SH, Chan EC, Harris R, et al. Promoting Informed Choice: Transforming Health Care to Dispense Knowledge for Decision Making. *Annals of Internal Medicine*. 2005; 143:293–300. [PubMed: 16103473]
9. Stacey D, Murray MA, Légaré F, et al. Decision Coaching to Support Shared Decision Making: A framework, Evidence, and Implications for Nursing Practice, Education, and Policy. *Worldviews on Evidence-based Nursing*. 2008; 5(1):25–35. [PubMed: 18266768]
10. Weinstein JN, Tosteson TD, Lurie J, et al. Surgical versus nonsurgical therapy for lumbar spinal stenosis. *N Engl J Med*. 2008; 358(8):794–810. [PubMed: 18287602]
11. O'Connor; Stacey; Jacobson. *Ottawa Personal Decision Guide* © 2012. Ottawa Hospital Research Institute and University of Ottawa; Canada:
12. O'Connor AM. *User Manual – Stage of Decision Making*. © 2000 [Updated 2003].
13. O'Connor AM. Validation of a decisional conflict scale. *Med Dec Making*. 1995; 15(1):25–30.

14. Chew LD, Bradley KA, Boyko EJ. Brief Questions to Identify Patients with Inadequate Health Literacy. *Fam Med*. 2004; 36(8):588–94. [PubMed: 15343421]
15. Wallace LS, Rogers ES, Roskos SE, et al. BRIEF REPORT: Screening Items to Identify Patients with Limited Health Literacy Skills. *Gen Intern Med*. 2006; 21:874–877.
16. Gattellari M, Ward JE. Will men attribute fault to their GP for adverse effects arising from controversial screening tests? An Australian study using scenarios about PSA screening. *J Med Screen*. 2004; 11:165–9. [PubMed: 15563771]

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Figure 1.
Patient enrollment (CONSORT flow diagram)

Figure 2a.
Mean patient knowledge of treatment facts (% correct)

Scale: 0 (no conflict about treatment decision) – 100 (high conflict about decision)
Decisional conflict scores < 25 are associated with implementing decisions.

Figure 2b.

Mean patient decisional conflict scores (uncertainty) over time

Table 1

Patient characteristics

Cohort characteristics	DA + Coaching		DA only		P value ^{*,+}
	N	(%)	N	(%)	
Study patients	82		86		
Female	41	50%	40	47%	0.65
Referred by surgeon	23	28%	22	26%	0.72
Low literacy	12	15%	19	22%	0.21
Age - Mean (SD)	66.7	(9.7)	66.6	(9.7)	0.73
White	80	98%	84	98%	0.54
Married	54	66%	64	74%	0.22
Retired	44	54%	39	45%	0.25
Some college or more	57	70%	57	68%	0.73

* Comparison of proportions using Chi-square

⁺ Comparison of continuous variables using 2-sided t-test

Table 2

Patient stage of decision making concerning treatment choice

How far along are you with this decision?		n	Not thought about the options	Considering the options	Close to choosing an option	Already made choice	p-value *
1) Before Decision aid	DA+HC	82	26%	33%	19%	22%	0.21
	DA only	86	35%	38%	11%	16%	
2) After DA Decision aid	DA+HC	82	4%	30%	29%	37%	0.76
	DA only	86	7%	33%	28%	33%	
3) Follow-up at 2 weeks	DA+HC	82	0%	11%	15%	74%	0.008
	DA only	86	3%	27%	17%	52%	

* Chi-square test, decision aid + health coach (DA+HC) vs. decision aid only (DA only).