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Electronic CommunKNEEications: A Descriptive Analysis of Anterior Cruciate Ligament Message Board Postings

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Abstract

Objective—The purpose of this study was to identify topics of potential concern to anterior cruciate ligament (ACL) surgery patients.

Design—An archival design was used.

Setting—Qualitative data were collected from two Internet message boards.

Method—A thematic content analysis was performed on the initial postings of 900 threads from the archives of two online forums. Postings ($N = 797$) in which questions were asked of the message board communities were placed in 1 of 22 content themes by two independent raters.

Results—More than half of the postings in which questions were asked pertained to rehabilitation and the postoperative period ($N = 436$, 55%), with approximately one-third of the postings ($N = 287$, 36%) corresponding to issues associated with surgery and the preoperative period. The content themes observed most frequently (all with more than 51 postings) were those pertaining to rehabilitation progress, pain, complications, physical therapy, diagnosis, returning to sport, and whether to have surgery.

Conclusions—A substantial number of individuals use Internet message boards to learn about ACL surgery and rehabilitation. Information gleaned from this study can be used to help ensure that the primary concerns of patients are addressed in educational materials.

Keywords

Internet; knee; surgery; rehabilitation

Injuries to the knee are among the more common and costly of the orthopedic problems encountered by participants in sport and recreational activities (Butcher et al., 1996; De Loes, Daulstedt, & Thomee; Lauder, Baker, Smith, & Lincoln, 2000; Schappert, 1998). Damage to the anterior cruciate ligament (ACL), which is important for providing stability to the knee joint (Muller, 1983), is especially prevalent. In the United States alone, approximately 80,000 people experience a torn ACL each year (Griffin et al., 2000). For athletes and other active people who have ruptured their ACL, reconstructive surgery is the treatment of choice (Marzo & Warren, 1991). ACL reconstruction surgery is a major medical intervention that typically involves an extended rehabilitation period of six months or more.

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Research has shown that surgical patients who are provided with accurate information on the sensory and procedural aspects of their surgery experience less pain and distress than those who receive no such information (Suls & Wan, 1989). Evidence of the beneficial effects of preparatory information on psychosocial outcomes is lacking, however, for individuals undergoing ACL surgery and rehabilitation. As part of the process of developing empirically-validated information-based patient education materials for prospective ACL surgery patients, it is important to address matters of potential concern to patients.

Examination of Internet message boards that enable individuals to post questions pertaining to ACL surgery and receive answers from members of the public is an unobtrusive means of determining issues of relevance to patients (Kraut et al., 2004). Consequently, the purpose of this study was to identify topics of concern to ACL surgery patients by assessing the content of questions posted to two ACL-related Internet message boards that are available to the public and do not require registration to post.

Method

All messages available in August of 2003 in the message board archives of www.kneeone.com and www.factotem.org pertaining to the ACL were subjected to content analysis. *Knee1.com* (www.kneeone.com) is one of a series of websites in the *Body1 Network* that provide users with education and information about a variety of medical conditions and health issues. Among the features at *Knee1.com* is a forum on “ACL Injuries” to which unregistered users can post and view both questions and responses to issues associated with ACL health. *Bob’s ACL WWWBoard* (www.factotem.org) is an Internet message board devoted exclusively to issues associated with the ACL. No registration is required for users to post and view responses on the message board. The *Knee1.com* and *Bob’s ACL WWWBoard* sites were selected for examination because they are, to our knowledge, the only ACL-specific online message boards.

The initial postings of the 900 threads found in the searches of the two archives were reviewed by a team of researchers for the purpose of identifying common themes in the postings. The research team consisted of three doctoral level psychologists who have conducted extensive research on psychological aspects of rehabilitation following ACL reconstruction and four graduate students who were enrolled in a master’s program in counseling and had course work and research experience in health and sport psychology. Through discussion among the members of the research team, 23 themes were identified and grouped in to 4 categories. The categories were: (a) questions about surgery and the preoperative period (8 themes); (b) questions about rehabilitation and the postoperative period (7 themes); (c) general questions that were not associated with either the preoperative period or the postoperative period (7 themes); and (d) postings that were not questions (1 theme). In keeping with the focus of the study on identifying matters for which ACL surgery patients might seek information, those postings that were not questions were not further examined for thematic content. Table 1 presents the three question-oriented categories and themes. After the 23 themes were identified, two independent raters examined each posting and assigned it to one of the themes. Interrater agreement (number of postings for which agreement on theme was achieved/900) was 95%; disputes were resolved through discussion between the raters.

Results

The majority of postings ($n = 797$) were questions for which answers were sought. As shown in Table 2, all 22 of the question-oriented themes were represented by at least 3 postings across the two message board archives. The themes of the questions pertained most frequently to rehabilitation progress (14%), pain (12%), complications (9%), physical therapy (8%), diagnosis (7%), return to sport (7%), whether to have surgery (7%), surgery/general (6%), and

surgery/graft type (5%). For both message board archives, postings were most common in the category pertaining to rehabilitation and the postoperative period (67% of the Bob's ACL WWWBoard postings, 47% of the Knee1.com postings, 55% of all postings), followed by the category pertaining to surgery and the preoperative period (26% of the Bob's ACL WWWBoard postings, 43% of the Knee1.com postings, 36% of all postings) and the category specific to neither the preoperative period nor the postoperative period (7% of the Bob's ACL WWWBoard postings, 11% of the Knee1.com postings, 9% of all postings), respectively.

Discussion

A major advantage of examining archived postings from the two ACL-related Internet message boards is that the data obtained in the current study are uncontaminated by interaction between the researchers and the research participants. Given the unbiased method of data collection and the fact that the people who posted to the message boards had to actively seek out the forums and compose a message to post, it can be assumed that the questions asked by the posters constituted inquiries to which the posters genuinely wanted answers. Findings from the current study therefore highlight key patient concerns that should be addressed in educational materials to assist ACL surgery patients through the process of surgery and postoperative rehabilitation.

Although commonplace in the current sports medicine environment, ACL reconstruction surgery is a procedure that can be accompanied by feelings of apprehension and anxiety (Brewer et al., 2002). Thus, it is not surprising that a substantial number of postings to both message boards pertained to surgery-specific issues encountered during the preoperative period. The physically and psychologically challenging nature of postoperative rehabilitation, which can linger for many months, likely accounts for the preponderance of postings on that topic. Individuals posting to the message boards seemed to be especially concerned about their rate of progression through rehabilitation (i.e., rehabilitation progress, return to sport) and postoperative physical symptoms (i.e., pain, complications), matters that can readily be addressed in patient education materials.

Several limitations should be considered when interpreting the results of the current study. First, it is possible that the people who posted to the message boards are not representative of ACL reconstruction patients as a whole. They may be more computer literate, affluent, and preoccupied with or concerned by their knee health than the typical ACL reconstruction patient. Further inquiry is needed to verify this speculation. Second, given that the vast majority of threads on the message boards were precipitated by questions that presumably reflected patient uncertainty, the present investigation did not identify the sources and types of information that patients found helpful in preparing for surgery and postoperative rehabilitation. Questionnaire and interview methods could be used to gain insight into the educational resources that patients find useful. Third, although the Internet transcends national borders, the message boards that were examined both are based in the United States and are available only in the English language. Consequently, the findings may not generalize to people residing in countries where the healthcare system, surgical procedures, and rehabilitative practices differ markedly from those posting to the two message boards.

The sheer volume of postings to the message boards suggests that a substantial number of individuals undergoing ACL surgery and rehabilitation look to the Internet for information pertaining to their medical situation. In light of the growing acceptance of and comfort with Internet-based approaches to health education (Cline & Haynes, 2001), the merits of both computerized and more traditional interventions to provide ACL-related patient information should be investigated. It might also prove fruitful to examine the nature and quality of and level of satisfaction with the responses that the individuals posting questions to the ACL message boards received in reply to their queries. Although beyond the scope of the current

study, such an analysis would provide additional insights into the utility of the Internet as an adjunct to the treatment and rehabilitation of ACL injuries. Further research pertaining to the development and evaluation of patient education materials has the potential to enhance the experience of and outcomes associated with ACL surgery and rehabilitation.

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Table 1
Illustrative Examples of Question Topics in Postings by Content Theme

Content Category	Theme	Illustrative Example(s)
Questions about surgery and the preoperative period	Diagnosis	diagnoses corresponding to specific symptoms
	Whether to have surgery	appropriateness of having ACL surgery
	Alternatives to surgery	what can be done instead of ACL surgery to improve knee function
	Surgeon selection	names of high quality surgeons in a specific geographical area
	When to have surgery	when ACL surgery should occur in relation to ACL injury
	Preoperative physical activity	appropriate physical activity prior to surgery
	Surgery/general	details of surgical procedures and effects
	Surgery/graft type	which type of graft to have in ACL surgery
Questions about rehabilitation and the postoperative period	Equipment	use of crutches, braces, cooling cuffs, etc.
	Physical complications	failed surgery, nerve damage, infections, etc.
	Pain	quality, intensity, and treatments of pain
	Emotions	frustration, anxiety
	Physical therapy	duration and content of rehabilitation services
	Rehabilitation progress	rate and extent of progress of rehabilitation at a particular point in time
General questions	Return to sport	timing of resumption of sport activities
	Payment/insurance	insurance coverage of treatment
	Practitioner relationship	nature of relationship with surgeon or physical therapist
	Ramifications for future knee health	ability to perform various nonsport tasks in the future
	Ramifications for future sport participation	ability to perform sport tasks in the future
	Terminology	meanings of medical terms
	Prevention of ACL injury	what can be done to prevent ACL injuries
	ACL-related statistics	prevalence of ACL injuries

Table 2
Frequencies of Message Board Postings by Content Theme

Content Theme	www.factotem.org	www.kneeone.com	Total
Rehabilitation progress	60	54	114
Pain	50	45	95
Complications	23	45	68
Physical therapy	26	34	60
Diagnosis	12	44	56
Return to sport	26	26	52
Whether to have surgery	15	37	52
Surgery/general	20	31	51
Surgery/graft type	11	32	43
Equipment	22	15	37
When to have surgery	9	24	33
Alternatives to surgery	1	26	27
Ramifications for future knee health	7	22	29
Terminology	6	10	16
Surgeon selection	9	5	14
Preoperative physical activity	5	6	11
Ramifications for future sport participation	5	5	15
Emotions	4	6	10
ACL-related statistics	0	7	7
Practitioner relationship	4	1	5
Payment/insurance	1	3	4
Prevention of ACL injury	0	3	3