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Evaluating appropriateness of treatment for Crohn's disease: feasibility of an explicit approach

THESE

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Evaluating appropriateness of treatment for Crohn's disease: feasibility of an explicit approach

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Résumé

Dans la maladie de Crohn, le clinicien ne dispose pas toujours d'études prospectives randomisées ou autres preuves solides sur lesquelles appuyer sa décision thérapeutique. Pour pallier ce manque, la méthode RAND, qui combine une revue détaillée de la littérature et une synthèse méthodique de l'opinion d'experts, a été utilisée pour développer des critères détaillés d'adéquation de traitements pour les différentes présentations cliniques de la maladie de Crohn. La présente étude a eu pour but d'examiner la faisabilité d'une utilisation rétrospective de ces critères dans une cohorte de patients souffrant de maladie de Crohn.

Les dossiers médicaux des patients ayant consulté leur spécialiste au moins une fois dans les 6 mois précédents ont été revus à la recherche des éléments établis par les experts. Pour les dossiers contenant tous les éléments nécessaires, l'adéquation des divers traitements a été évaluée.

Les dossiers médicaux de 260 patients suivis par 22 gastro-entérologues ont été examinés. 116 patients ont été exclus pour absence de consultation dans les 6 mois précédents. 136 patients (53%) représentant 148 consultations ont été retenus. Dans plus de 90% des cas, les éléments nécessaires à l'évaluation de l'adéquation du traitement étaient disponibles, cette proportion variant quelque peu selon la catégorie de la maladie. En appliquant les critères lorsque les éléments nécessaires étaient présents dans le dossier médical, 18% des indications aux traitements étaient appropriées, 29% inappropriées et pour 38% l'indication était incertaine. Pour 15% des cas, la situation clinique rencontrée n'avait pas été explicitement évaluée par les experts.

Les informations nécessaires à l'évaluation des indications aux divers traitements de la maladie de Crohn sont disponibles dans la très grande majorité des dossiers médicaux, permettant ainsi l'évaluation de l'adéquation des traitements. Cette étude ouvre la voie à l'utilisation prospective de ces critères.

Abstract

Background : Situations where practical therapeutic decisions differ from guidelines in the management of patients with Crohn's disease (CD) have been described through opinion surveys. The feasibility of actually documenting these situations using an explicit approach has not been examined.

Objective : The aim of this study was to evaluate the feasibility of a retrospective application of appropriateness criteria to a population of CD patients.

Methods : Medical records of a cohort of patients diagnosed with CD were systematically reviewed. We used appropriateness criteria for treatment of CD that had been developed by the European Panel on the Appropriateness of Crohn's disease Therapy (EPACT). First we evaluated the level of precision of the elements abstracted from medical records needed in order to be able to apply these criteria. We then assessed the appropriateness of treatment for different CD categories. Only participants with at least one physician encounter during the last six months were included.

Results : 260 patient medical records were reviewed on site at 22 gastroenterologists' offices over a 2-month period in 2005. 116 (44%) patients were excluded because they did not have at least one medical visit at their referred gastroenterologist during the last six months. Medical records for eight additional patients (3%) were not accessible. One hundred thirty-six (53%) medical records including 148 encounters were available for analysis. Overall, elements necessary to determine the appropriateness of treatment were available in 94% (139/148) of encounters. These elements were available in more than 90% of cases for all CD categories except for mild-moderate luminal active CD where 66% were available. Among those with all necessary elements available, 18% of treatments were judged as appropriate, 29% inappropriate, 38% uncertain according to the EPACT criteria, and for the other 15%, appropriateness had not been rated by the EPACT panel.

Conclusions : The information necessary to assess the appropriateness of treatment of major type of CD was generally both present and precise in medical records. Therefore, in addition to the intended prospective use of these criteria, retrospective evaluation of the appropriateness of CD treatment using medical records is also feasible with the EPACT criteria.

INTRODUCTION

Although the implementation of practice guidelines for inflammatory bowel disease has been shown to reduce practice variation and improve patient quality of life [1], some patients with Crohn's disease (CD) still do not receive optimal therapy [2]. Situations where therapeutic decisions differ from practice guidelines in the management of CD have been described [3], but there are important conceptual and operational obstacles to the actual documentation of such situations and, partly for this reason, their actual frequency has not yet been evaluated.

In 2004, the European Panel on the Appropriateness of Crohn's disease Therapy (EPACT) developed explicit, detailed, and clinically specific criteria for the appropriateness of care, using the RAND / UCLA appropriateness method [4,5]. These criteria are operationalized in 569 clinical scenarios, grouped in broad clinical categories. Although the criteria are designed to be used prospectively, we were interested in evaluating appropriateness of care at baseline, retrospectively, using medical records. Therefore, as a prelude to wider implementation in a large national cohort study currently being launched in Switzerland [Swiss National Science Foundation grant no. 3347CO/108792, Swiss IBD Cohort Study], and in the perspective of an international (European) application of these criteria, the aim of this pilot study was to evaluate the feasibility of using medical records to assess the appropriateness of care of CD.

METHODS

Participants

During 2004, we identified all adults patients with a diagnosis of either CD or ulcerative colitis in the canton of Vaud, Western Switzerland, (650'000 inhabitants) by surveying the records of the pathology laboratories serving the area, the letters of discharge from the tertiary reference hospital and all the words documents of all the gastroenterologists practicing in the defined area for the words "Crohn" and "ulcerative colitis". A collaboration with the Swiss IBD patient organisation was also set up to stimulate patients to participate in the cohort. Written informed consent was obtained from participants for their enrolment in a population-based cohort of patients with inflammatory bowel disease. This study focused on patients with CD.

Study design

A retrospective review of patient records was conducted by one investigator (IG). Participants' medical records were consulted in the practices of participating gastroenterologists (N=22) during a 2-month period (April - May 2005) in order to assess the availability of the elements necessary to evaluate the appropriateness of care, using the EPACT criteria. Among the 22 gastroenterologists, four were working in hospitals and three had a particular interest in IBD. To avoid an inordinate time lag between the development of the criteria and the medical decisions being evaluated, we limited our study to patients with an encounter with their gastroenterologist within the six months preceding the date of medical record review.

Patient identification and date of last medical encounter were used to determine eligibility. Any face-to-face visit, phone call or e-mail contact with the gastroenterologist was considered as a medical encounter. Laboratory results with no mention of patient contact were not considered as a medical encounter. Each medical record was reviewed with a focus on patient history, endoscopies, laboratory tests, pathology and radiological reports necessary to apply the EPACT criteria. Current

and past treatments were recorded, including duration of treatment and clinical response. Clinical response was recorded as *complete* (prolonged clinical remission with or without endoscopic remission); *partial* (improvement without remission or transitory remission); *failure* (clinical non-amelioration or worsening or an adverse event); *not assessable* (response was not found in the medical record).

If a patient had more than one encounter during this time period, each visit presenting a different event of CD (e.g., luminal disease then fistulizing) was reported separately. Thus, for purposes of examining appropriateness of care, each event (even if concerning the same patient) corresponded to a separate medical decision.

CD category, as used during the EPACT conference, was established for each participant and before assessing the appropriateness of treatment, we determined the level of precision of this information. The precision of each CD category was therefore evaluated by documenting criteria included in the definitions proposed for broad clinical categories of CD [6-12]. If the medical record reported at least one of the criteria from the definitions and included supporting documentation, this element was considered as "*present and precise*". If the medical record mentioned the item, but none of the criteria used to define the category were documented, this element was considered as *"present but imprecise"*. For example, mention of fistulizing CD in the medical record was judged as present and precise if the medical record contained documentation of a digital rectal examination, a fistulography, a computed tomography, an MRI or an endoscopic ultrasonography, according to the definition used by the EPACT panel and included in the EPACT website [13]. Otherwise it was considered present but imprecise.

According to these defined criteria, we estimated situations where current treatment options differed from the EPACT criteria. These criteria and results are available on the EPACT website (www.epact.ch) [13].

Data Analysis

Data were collected using the ACCESS software, using a double entry system to minimize error. Analyses of proportions of appropriate treatment were performed using the STATA software 8.0.

RESULTS

Sample Characteristics

A total of 260 patient's medical records were consulted over a 2-month period. One hundred sixteen patients' medical records (44%) were excluded because they did not have at least one medical encounter with the gastroenterologist during the preceding six months. Eight (3%) medical records were not accessible. One hundred thirty-six medical records including 148 encounters were available for analysis. Thirty-five percent (47/136) concerned patients seen by staff at the University hospital. The majority of patients were female (58%), and the mean age was 43 years +/-14 (SD, range 18-100). Most (91%) were diagnosed with CD after 1980. The most frequent location of CD at diagnosis was ileocolonic (44%). The most frequent category encountered was luminal CD (81%) (Table 1). Of the 569 possible detailed scenarios in the EPACT criteria, only 35 were actually encountered in this study. Two-thirds of patients were in remission at their last visit, and remission had been medically-induced for more than 80% of them (Table 1).

Precision of information

CD category was established for each participant and the precision of this information assessed. For the initial sorting of case into broad clinical categories, information was present and precise for all cases of mild-moderate and severe active luminal CD (19/19), maintenance of medically-induced remission CD (74/74) and maintenance of surgically-induced remission CD (15/15). Information was present but imprecise for 2 of the 12 patients with steroid-dependent CD, both cases of steroid-refractory CD (2/2), 2 of the 15 patients with fistulizing CD, and 5 of the 11 patients with fibrostenotic CD.

Proportion of encounters with all elements necessary to determine appropriate treatment

Among the 148 encounters, necessary elements to determine treatment appropriateness, based on the EPACT criteria, were available in 139 encounters (94%) (Table 2). For all CD categories, except the mild-moderate active luminal CD, the proportion of encounters with all elements was over 90%.

Concerning the mild-moderate active luminal CD category, necessary elements were missing for six encounters (34%), involving 5 gastroenterologist practices; CD locations were not defined in three of them, and prior prednisone treatment responses were not available for the other three.

Appropriateness of treatment

After evaluating the level of precision of the elements abstracted from medical records, we estimated the appropriateness of treatment for the different categories of CD (Table 3).

Overall, we found that 18% of treatment were appropriate, 29% inappropriate, 38% uncertain while 15% of treatment encountered had not been rated during the EPACT panel. The main reasons for the latter were that the panel had considered them as invalid indications, e.g. prescription of antibiotics in prior antibiotics therapy failure, or because they were simply not rated by the panel. A considerable number (49 cases) of treatments of uncertain indication were found in maintenance of medically-induced remission CD. Most of them were due to azathoprine therapy prescribed in low-risk patient with medically-induced remission CD, and wait and see attitude in maintenance of medically-induced remission (8 cases). Inappropriate therapies were found in low-risk patient with medically-induced remission CD.

When considering appropriateness by treatment (Table 4), azathioprine was the most frequent (56/153) treatment encountered. More than 40% (20/45) of therapeutic decisions considered as inappropriate by applying the EPACT criteria were in relation to oral mesalazine.

DISCUSSION

For more than 94% of CD patients followed in gastroenterology practices, elements necessary to judge the appropriateness of care could be identified retrospectively in the medical records, thus confirming the feasibility of this approach to evaluating quality of care for these patients.

This study also demonstrated that according to the EPACT criteria, all elements were not always crucial to assess the appropriateness of CD treatment. Indeed, even though all elements were not accessible, appropriateness evaluation was in fact feasible for all but 6% of prescriptions. On the other hand, this study highlights the fact that some elements are indispensable for applying these criteria. Indeed, for luminal active CD, the current location of the disease (ileocolonic or colonic) may be missing in medical records since endoscopies are not systematically performed in previously known CD patients who present an active CD. Thus, initial location (i.e., location of CD at diagnosis) may be used for the current location if evidence for another location is not present.

In addition to the conclusion that retrospective examination of patient's records can be used to abstract the information required to assess the appropriateness of care in CD, this study also demonstrated the feasibility of quantifying the frequency of situations where therapeutic decisions differ from practice guideline in CD.

According to the EPACT criteria, the majority of treatment decisions encountered in this study were considered as uncertain or inappropriate. The most frequent inappropriate decisions were for oral mesalazine in maintenance of medically-induced remission CD in patient with low frequency of relapse, azathioprine and budesonide in mild-moderate luminal active CD or fibrostenotic CD, and methotrexate in mild-moderate luminal active CD.

Oral mesalazine in medically-induced remission in patients with low frequency of relapse represent 40% of the overall inappropriate treatment. The EPACT panel (2004) considered that in low frequency relapsers, smoking cessation was the only clearly appropriate intervention. The common use of 5-ASA for maintenance of remission in CD has been based on the results of earlier studies showing that mesalazine reduces the risk of clinical disease relapse in Crohn's disease [14,15]. The European Consensus Conference, held in 2004, states that if remission has been achieved medically after the first presentation, maintenance with mesalazine is a treatment option, although they indicated that there is no consistent evidence for its efficacy [16]. More recently, Akobeng et al., in 2005, found no evidence to suggest that 5-ASA preparations are superior to placebo for the maintenance of medically-induced remission in patients with Crohn's disease [17]. Thus, if mesalazine were to be considered as an appropriate treatment option, the overall proportion of inappropriate treatment in our study would be only 16%.

Uncertain treatments were mainly found in maintenance of medically-induced remission CD (49/79). Among those 49 uncertain cases, the majority concern patients with low frequency of relapse ($\leq$ 2 / year) and treated by azathioprine (29 cases). This rather high number of uncertain decisions highlights the need of continuing effort for further refining the EPACT criteria, especially concerning indications classified as "uncertain", as they may represent a considerable proportion of therapies prescribed.

Of the 260 eligible patients, almost half were excluded because they did not have a clinical encounter in the last 6 months. This could be interpreted in different ways. It might mean that those patients are treated sufficiently well (appropriately) that they are stable and doing well and don't require attention. These patients may also have visited their GP, a gastroenterologist in another area, or favoured complementary medicine approaches. The large proportion of excluded patients does not, however, detract from the overall finding concerning the feasibility of a retrospective approach to the assessment of quality of care in the case of CD.

A further limitation of our study is that the doses of drugs were not included in our evaluation of appropriateness. Taking account of the drug dose would probably change the rate of inappropriateness. However, drug dose is subject to too many factors which are difficult to estimate, including intolerance and side effects. Moreover, patient's weight was not systematically indicated in the medical records so that determining the dose prescribed per kilogram would have been impractical, if not impossible. Therefore, we assumed that the dose prescribed by the gastroenterologists was the appropriate dose for the patient and we did not include this criterion into the appropriateness evaluation.

Among the strengths of this study is the detailed precision of the criteria used to assess appropriateness. The fact that only 35 of the possible 569 detailed scenarios were actually encountered in our study -- even considering the small sample of patients -- may suggest that the EPACT criteria are too detailed. On the other hand, this study demonstrated that a non-negligible proportion (15%) of current treatments were not rated by the EPACT panel, pointing to a lack of completeness of those criteria. This underscores the need to periodically revisit and update criteria and, through an iterative process, align and adjust theoretical criteria with actual data on prevalence of clinical situations.

Previous medical record studies have used the RAND-based evaluation of appropriateness of care with divergent results. While some studies found medical records to be of limited use in assessing the appropriate management of care [18,19], other studies succeed in determining a significant proportion of appropriateness of care [20-23]. This underscores the fact that the feasibility of using the medical records for evaluating the appropriateness of care may not be generalizable to other settings and other disease entities or procedures and need to be validated for each setting.

What are the implications of this study? First, as pilot study, preluding the implementation of the Swiss IBD cohort study [Swiss National Science Foundation grant no. 3347CO/108792, Swiss IBD Cohort Study - SIBDCS], this study confirms that it will be possible to obtain a baseline notion of the appropriateness of care for patients at enrollment in the cohort. On the other hand, the aim of the study was not to evaluate the validity of the EPACT criteria, e.g., to judge the validity of inappropriateness of oral mesalazine. To undertake such an endeavour, it would clearly be preferable to collect information and apply the criteria prospectively as foreseen by the EPACT panel itself and in the SIBDCS.

In conclusion, this study demonstrated the feasibility to use retrospectively RAND panel based criteria for the assessment of appropriateness of care in Crohn's disease. This study paves the way for the use of these criteria in the evaluation and improvement of care for CD in large cohorts of patients.

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Competing interests: None

Table 1. Type and frequency distribution of CD, according to the disease category used for the EPACT expert panel (N=136) (The definitions used are available at the website www.epact.ch)

Type of CD	N (%)
Luminal	**111 (81.6)**
Fistulizing	**15 (11.0)**
Simple fistula	4 (26.7)
Complex fistula	11 (73.3)
Fibrostenotic	**11 (8.1)**
<7cm	4 (36.3)
>7cm	6 (54.5)
Length not mentioned	1 (9.0)
Small bowel only	9 (81.8)
Colonic only	1 (9.0)
Anastomotic	1 (9.0)
Gastroduodenal	**5 (3.7)**
Stenosis	4 (80.0)
Non stenosis	1 (20.0)
Extraintestinal	**22 (16.2)**
Active	**19 (14.0)**
Mild-moderate	18 (94.7)
Severe	1 (5.3)
Remission	**89 (65.4)**
Medically induced	74 (83.1)
Low frequency of relapse (≤ 2 / year)	67 (90.5)
High frequency of relapse (> 2 / year)	6 (8.1)
Not mentioned	1 (1.3)
Surgically induced	15 (16.8)
Low risk of recurrence	3 (20.0)
High risk of recurrence	12 (80.0)
Steroid-dependant	**12 (8.8)**
Steroid-refractory	**2 (1.5)**
Not mentioned	**14 (10.3)**

Table 2. Proportion of encounters with all elements necessary to determine appropriate treatment

CD category	Encounters with all elements/Total number of encounters (%)
Mild-moderate active luminal CD	12/18 (66)
Severe active luminal CD	1/1 (100)
Steroid-dependent CD	12/12 (100)
Steroid-refractory CD	2/2 (100)
Fistulizing CD	14/15 (93)
Fibrostenotic CD	11/11 (100)
Maintenance of medically-induced remission CD	73/74 (98)
Maintenance of surgically-induced remission CD	14/15 (93)
Total	**139/148 (94)**

Table 3. Appropriateness of treatment (n=number of treatment)

CD category	n	A	U	I	NR
Mild-moderate Active Luminal	16	3	2	10	1
Steroid-dependent	8	5	2	-	1
Steroid-refractory	5	1	1	-	3
Fistulizing	19	4	3	-	12
Fibrostenotic	14	3	-	9	2
Maintenance of medically-induced remission	79	2	49	26	2
Maintenance of surgically-induced remission	12	9	1	-	2
Total	**153 (100%)**	**27 (18%)**	**58 (38%)**	**45 (29%)**	**23 (15%)**

[A] Appropriate; [U] Uncertain; [I] Inappropriate; [NR] Not rated

Table 4. Appropriateness considered by treatment (n=number of treatment)

THERAPY	n	A	U	I	NR
Azathioprine	56	11	29	8	8
Budesonide	8	-	-	7	1
Antibiotics (ciproxine or metronidazole)	6	-	-	1	5
Dilatation	1	1	-	-	-
Infliximab	11	3	6	2	-
Mercaptopurine	4	1	2	-	1
Methotrexate	21	4	10	5	2
Oral mesalazine	26	2	2	20	2
Prednisone*	8	3	-	2	3
Resection	1	1	-	-	-
Stricturoplasty	1	1	-	-	-
Sulfasalazine	1	-	-	-	1
Wait & see	9	-	9	-	-
Total	**153 (100%)**	**27 (18%)**	**58 (38%)**	**45 (29%)**	**23 (15%)**

[A] Appropriate; [U] Uncertain; [I] Inappropriate; [NR] Not rated;
*12 patients with steroid-dependent CD not included

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