ORIGINAL ARTICLE

Simple Enterographic Activity Score for Crohn's Disease: comparison with endoscopic, biochemical, and clinical findings

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KEY WORDS

ileocolonoscopy, inflammatory bowel disease, magnetic resonance enterography

ABSTRACT

INTRODUCTION Magnetic resonance enterography (MRE) is believed to be a reliable diagnostic method in assessing the activity of small-bowel Crohn's disease (CD). However, there are no scales for quantifying MRE scores that could be used in everyday clinical practice.

OBJECTIVES The aim of the study was to construct a simple scale for assessing the activity of CD (Simple Enterographic Activity Score for Crohn's Disease – SEAS-CD) in MRE and to investigate its clinical usefulness.

PATIENTS AND METHODS We conducted a retrospective analysis of MRE findings in 122 patients with CD. Disease activity was assessed using the SEAS-CD. The reference standard was endoscopic assessment using the Simple Endoscopic Score for Crohn's Disease (SES-CD). We assessed correlations between SEAS-CD and endoscopic, clinical, and biochemical findings. We also proposed the Global Crohn's Disease Activity Score to assess total CD activity by summarizing the colonic SES-CD and SEAS-CD scores.

RESULTS In the validation group (n = 62), a significant correlation between the ileal SES-CD and ileal SEAS-CD scores was noted ($r = 0.72$, $P < 0.0001$). In patients with isolated small-bowel CD, there was a significant correlation between SEAS-CD and Crohn's Disease Activity Index (CDAI), C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), hemoglobin (Hb), albumin, and platelet count. In patients with ileocolonic CD, the Global Crohn's Disease Activity Score correlated with CDAI, CRP, ESR, Hb, and hematocrit.

CONCLUSIONS SEAS-CD is a useful tool for the quantification of small-bowel CD activity assessed by MRE. The Global Crohn's Disease Activity Score may be useful in assessing the progression of lesions in patients with ileocolonic CD.

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Received: March 23, 2013.
Revision accepted: June 13, 2013.
Published online: June 14, 2013.
Conflict of interest: none declared.
Pol Arch Med Wewn. 2013; 123 (7-8): 378-385

INTRODUCTION With the increasing incidence of inflammatory bowel diseases, Crohn's disease (CD) has become one of the most challenging diseases in gastroenterology both in terms of diagnosis and treatment.[1] Therefore, it is essential to use objective methods to estimate the disease activity and its progression or regression over time.[2,3] The assessment of clinical and biochemical activity of CD has several limitations. Thus, the usefulness of some new inflammatory markers assessed in stool, serum, or saliva is still being investigated.[4,5]

Clinical studies with biological agents have shown that the endoscopic assessment of the severity of inflammation in the gastrointestinal tract is the most accurate method of estimating CD activity.[6,7] However, the disease location (proximal part of the ileum or jejunum) does not always allow for the detection and assessment of the inflammatory lesions in ileocolonoscopy. Moreover, complete colonoscopy with ileal intubation is not always possible for technical reasons. Therefore, the development of noninvasive cross-sectional bowel imaging techniques seems to be

TABLE 1 Simple Enterographic Activity Score for Crohn's Disease

MRE feature	Grading scale		
bowel thickening	<3 mm: 0 pts	3–7 mm: 1 pt	>7 mm: 2 pts
contrast enhancement	none: 0 pts	homogenous pattern: 1 pt	layered pattern: 2 pts
fat wrapping	none: 0 pts	present: 1 pt	
proliferation of mesenteric vasculature	none: 0 pts	<5 vessels/3 cm^2 of mesenteric fat: 1 pt	≥5 vessels/3 cm^2 of mesenteric fat: 2 pts
mesenteric lymphadenopathy	none: 0 pts	<10 enlarged lymph nodes: 1 pt	≥10 enlarged lymph nodes: 2 pts
ulcerations	none: 0 pts	at least 1 ulceration present, not exceeding ½ of bowel thickness: 1 pt	at least 1 ulceration present, exceeding half of bowel thickness: 2 pts
stenotic complications	none: 0 pts	stenosis without prestenotic dilatation: 1 pt	at least 1 stenosis with prestenotic dilatation: 2 pts
intra-abdominal fistulas	none: 0 pts	at least 1 intra-abdominal fistula present: 5 pts	
extent of the disease in jejunum or ileum	<30 mm: 1 pt	30–1500 mm: 2 pts	>1500 mm: 3 pts

Abbreviations: MRE – magnetic resonance enterography

crucial for the assessment of the global extent of CD and its activity. Magnetic resonance enterography (MRE) allows to visualize the whole intestinal wall and the extra-enteric inflammatory involvement. Because MRE is radiation-free, it has been regarded as the method of choice in the radiologic examination of the small bowel.[8]

One of the most important limitations of MRE is the lack of objective scales that enable the quantitative assessment of CD activity and comparison of different MRE modalities. In this study, we designed a scale called the Simple Enterographic Activity Score for Crohn's Disease (SEAS-CD) for the assessment of CD activity in the small bowel. We compared the results of this scale with those of endoscopic assessment of CD activity in the ileum, which we considered as the reference standard. To estimate the global CD activity, we combined the 2 most accurate techniques for the detection of inflammatory activity in the small and large bowels (MRE and colonoscopy, respectively) and calculated the Global Crohn's Disease Activity Score. We then correlated it with clinical and biochemical findings. The novelty of our study is that the proposed SEAS-CD scale allows to assess CD activity objectively, and because of its simplicity, it can be easily applied in everyday practice, unlike the other available indices.

PATIENTS AND METHODS

Patients

We conducted a retrospective analysis of the MRE findings in 122 patients with CD. All patients were hospitalized at the Heliodor Święcicki University Hospital in Poznań, Poland, because of CD exacerbation or to undergo follow-up examinations during the remission period. Clinical activity of the disease was assessed using the CD Activity Index (CDAI) and blood inflammatory markers were measured.

Magnetic resonance enterography

In each patient, MRE was performed using the same study protocol. Patients fasted for 6 hours before MRE and 1500 ml of oral polyethylene glycol was administered 30 minutes before the procedure. Fifteen minutes before the scanning, 4 mg of buscolysin was injected intravenously to reduce bowel motility. To reduce respiratory movements and provide higher image quality, the imaging was performed under breath-hold conditions. The standard study protocol consisted of the following sequences:

1 true fast imaging with steady-state free precession (TrueFISP) sequences in the coronal and transverse planes for anatomic overview and for bowel dilatation or wall-thickening detection

2 single-shot turbo spin-echo (HASTE) sequences with fat suppression in the coronal plane to assess fluid and edema of the bowel and surrounding tissues

3 cine loop coronal images for the visualization of the bowel movements and stenosis

4 volumetric interpolated breath hold examination (VIBE) T_1-weighted 3D Fast Low Angle Shot (FLASH) technique with fat selective prepulse before and after intravenous injection of gadolinium contrast (dose of 0.1 mmol/kg followed by 20 ml of saline) for the detection of inflammatory process.

All MRE examinations were assessed by one radiologist with over 10 years of experience in this type of imaging technique. The SEAS-CD scale was designed on the basis of a thorough analysis of the previously developed scales and available literature data on MRE imaging in CD.[8-14] We identified the most important features reflecting CD activity: bowel thickening, contrast enhancement, edema of the perivisceral fatty tissue with or without vascular proliferation, enlargement of the mesenteric lymph nodes, presence of mucosal ulcerations, bowel strictures and presence of enteroenteric fistulas, and disease extent.[15] Depending on the presence and characteristics of each feature, an adequate score was calculated according to the proposed scale (TABLE 1). Enterographic activity was assessed separately for the jejunum and ileum (jejunal SEAS-CD and ileal SEAS-CD) and then summarized to obtain the total SEAS-CD.

Ileocolonoscopy

Ileocolonoscopy was performed in 72 of 122 patients (59%) by an experienced

TABLE 2 Simple Endoscopic Score for Crohn's Disease (SES-CD)[16]

Presence and size of ulcers	Extent of ulcerated surface	Extent of affected surface	Presence and type of narrowings
none: 0 pts	0%; 0 pts	0%; 0 pts	none: 0 pts
aphthous, <0.5 cm: 1 pt	<10%; 1 pt	<50%; 1 pts	single, can be passed: 1 pt
large, 0.5–2 cm: 2 pts	10%–30%; 2 pts	50%–75%; 2 pts	multiple, can be passed: 2 pts
large, >2 cm: 3 pts	>30%; 3 pts	>75%; 3 pts	cannot be passed: 3 pts

* each variable is calculated separately in the ileum (ileal SES-CD) and the right colon, transverse colon, left colon, and rectum (colonic SES-CD)

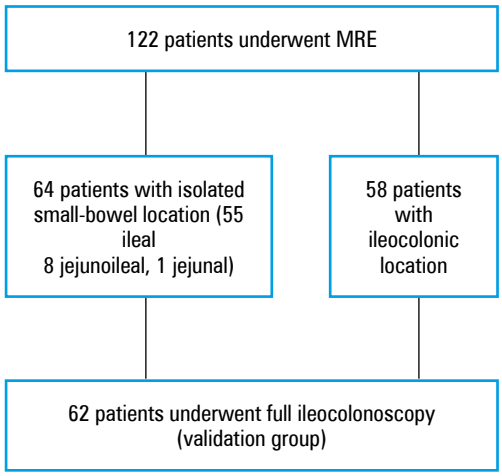

FIGURE 1 Study subgroups of patients with Crohn's disease Abbreviations: see TABLE 1

endoscopist, who was blinded to the MRE results. The interval between MRE and endoscopy was not more than 4 days. In each case, the endoscopic activity of CD was assessed using the Simple Endoscopic Score for Crohn's Disease (SES-CD) (TABLE 2).[16] For technical reasons, it was not possible to intubate the ileum in 10 patients. As a result, full ileocolonoscopy with the estimation of the ileal SES-CD and colonic SES-CD was performed in 62 of 72 patients. In this group (n = 62), 14 patients had isolated small-bowel CD and 48 patients had ileocolonic CD. This group constituted the so called "validation group", because the comparison of the ileal SES-CD as a reference with the ileal SEAS-CD was the main indicator of SEAS-CD usefulness in the objective assessment of CD activity in MRE.

Study subgroups The validation group comprised 62 of 122 patients who underwent full ileocolonoscopy (FIGURE 1). We also analyzed correlations in patients with small bowel involvement (n = 64; 55 with isolated ileal location, 1 with an isolated jejunal location, and 8 with combined jejunal and ileal locations). We assessed the usefulness of the SEAS-CD scale, and then combined and summarized both scores, SEAS-CD (assessing the CD activity in the small bowel) and colonic SES-CD (assessing the CD activity in the large bowel), to estimate the global CD activity in patients with ileocolonic location of the disease (n = 58). We then compared the Global Crohn's Disease Activity Score with clinical and biochemical data.

Statistical analysis All statistical analyses were performed using the GraphPad Prism version 4.0 software. The Spearman coefficients were calculated to assess the correlations between SEAS-CD, SES-CD, CDAI, and biochemical markers. A *P*-value of less than 0.05 was considered statistically significant.

Ethical considerations An informed consent approved by the Institutional Review Board at the Heliodor Święcicki University Hospital was obtained from each participant before entering the study.

RESULTS Characteristics of the study population The clinical, epidemiological, and biochemical characteristics of the patient population are summarized in TABLE 3.

The ileum was the most frequently involved bowel segment in the whole study group (121 of 122 patients; 99%). In the majority of cases (77 of 121 patients; 64%), CD involved the distal loop (distal 15 cm) of the ileum. In 44 of 121 patients (36%), the ileal involvement was greater than 15 cm.

Validation group A significant correlation between the ileal SES-CD and ileal SEAS-CD was observed in the validation group (FIGURE 2). However, neither the ileal SEAS-CD or total SEAS-CD correlated with the CDAI or blood inflammatory markers. A strong positive correlation was found only between the total SEAS-CD and platelet count ($r = 0.3$, $P = 0.02$).

In a separate analysis of variables composing SEAS-CD, we observed the strongest correlation between bowel thickening ($r = 0.4$, $P = 0.01$), mesenteric lymphadenopathy ($r = 0.4$, $P = 0.003$), and disease extent ($r = 0.6$, $P < 0.0001$,) with the ileal SES-CD.

Patients with isolated small-bowel Crohn's disease We observed significant correlations between both the total SEAS-CD and ileal SEAS-CD and CDAI. The SEAS-CD also correlated significantly with the majority of blood inflammatory markers (TABLE 4).

Patients with ileocolonic Crohn's disease In this group, the total SEAS-CD did not correlate with the CDAI or the majority of blood inflammatory markers. The Global Crohn's Disease Activity Score significantly correlated with SEAS-CD and

TABLE 3 Characteristics of the study population (n = 122)

Feature		Result
sex, male/female, %		62/60 (51/49)
age, y		33 ±12
disease duration, y		5 ±4
disease behavior, n (%)	inflammatory	115 (94)
	penetrating	39 (32)
	stricturing	18 (15)
disease location, n (%)	colon	58 (47)
	ileum	121 (99)
	jejunum	9 (7)
previous surgery, n (%)		31 (25)
CDAI		250 (207–260)
SES-CD		11 (10–14)
ileal SES-CD		5 (4–6)
colonic SES-CD		6 (6–10)
total SEAS-CD		11 (10–12)
ileal SEAS-CD		11 (9–11)
jejunal SEAS-CD		0 (0–1)
Global Crohn's Disease Activity Score		17 (15–20)
CRP, mg/l		22.9 ±26
ESR, mm/h		31 ±22
blood cell count	RBC, × 10^6/mm^3	4.4 ±0.7
	Hb, g/dl	12.3 ±2.1
	Ht (%)	37 ±5
	PLT, × 10^9/l	367 ±117
	WBC, × 10^3/mm^3	7.74 ±3.5
fibrinogen, mg/dl		463 ±152
total protein, g/dl		6.8 ±0.8
albumin, g/dl		4 ±0.7

Data are presented as mean ± standard deviation, median (95% confidence interval), or number (percentage).

Abbreviations: CD – Crohn's disease, CDAI – Crohn's Disease Activity Index, CRP – C-reactive protein, ESR – erythrocyte sedimentation rate, GI – gastrointestinal tract, Hb – hemoglobin, Ht – hematocrit, PLT – platelet count, RBC – red blood count, SEAS-CD – Simple Enterographic Activity Score for Crohn's Disease, SES-CD – Simple Endoscopic Score for Crohn's Disease, WBC – white blood count

SES-CD as well as with the CDAI and the major blood inflammatory markers (TABLE 5).

DISCUSSION Enteroscopy and capsule endoscopy are considered the gold standard in the assessment of the extent and activity of small-bowel CD.[17] However, these methods are not widely available, and they are time-consuming, expensive, and invasive. Therefore, cross-sectional imaging techniques such as MRE are increasingly applied in CD.

So far, several MRE indices have been developed for the assessment of CD activity. One of the most advanced indices, in terms of methodology, is the Magnetic Resonance Index of Activity (MaRIA) proposed by Rimola et al.[13] In this model, a mathematical formula is used that includes the most accurate predictors of active disease, as compared with endoscopic findings. These predictors are as follows: wall thickness, relative contrast enhancement, and the presence of edema and ulcers. The authors concluded that MaRIA correlated with the endoscopic activity of CD. However, the magnetic resonance technique applied in this study differed from the majority of MRE protocols. To assess the MRE activity of CD in the large bowel, the colon was additionally filled with warm water by inserting a flexible rectal balloon catheter. This gave sufficient bowel distension and allowed to assess the correlation between the MRE and endoscopic findings in the colon.

Several other indices have also been proposed; however, because of significant differences between MRE protocols, complexity of the MRE scores, and different types of study group definitions, those indices are rarely implemented in everyday practice.[14,18] Therefore, we designed a simple score that includes the most commonly assessed variables.

Wall thickening with enhancement after intravenous contrast administration is considered to be one of the crucial signs of active

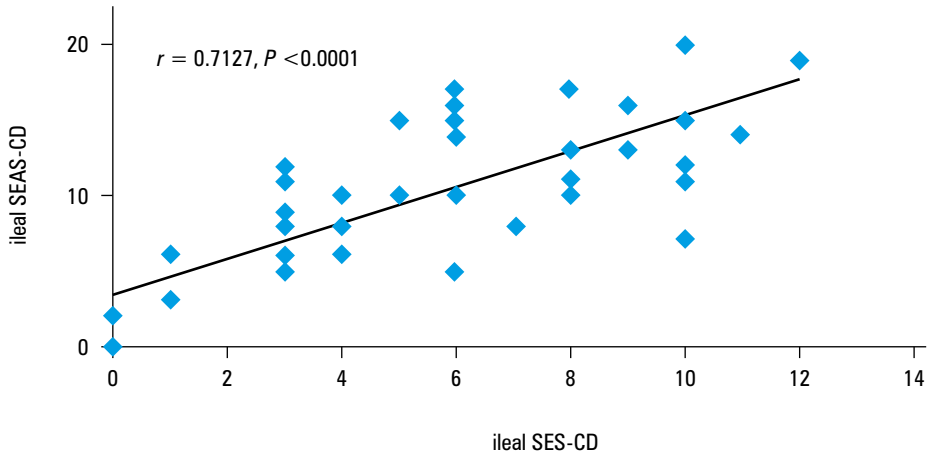

FIGURE 2 Correlation between the ileal Simple Enterographic Activity Score for Crohn's Disease (SEAS-CD) and ileal Simple Endoscopic Score for Crohn's Disease (SES-CD) in the validation group

TABLE 4 Correlations between the Simple Enterographic Activity Score for Crohn's Disease and clinical and biochemical findings in patients with small bowel Crohn's disease

	Total SEAS-CD	Ileal SEAS-CD
total SEAS-CD	none	$P < 0.0001$ $r = 0.92$
ileal SEAS-CD	$r = 0.92$ $P < 0.0001$	none
CDAI	$r = 0.425$ $P = 0.003$	$r = 0.48$ $P = 0.001$
CRP	$r = 0.326$ $P = 0.01$	$r = 0.25$ $P = 0.04$
ESR	$r = 0.33$ $P = 0.01$	NS
RBC	NS	NS
Hb	$r = –0.41$ $P = 0.002$	$r = –0.3$ $P = 0.02$
Ht	$r = –0.39$ $P = 0.003$	$r = –0.3$ $P = 0.02$
WBC	NS	NS
PLT	$r = 0.3$ $P = 0.03$	$r = 0.28$ $P = 0.02$
fibrinogen	NS	NS
total protein	NS	NS
albumin	$r = –0.33$ $P = 0.02$	$r = –0.39$ $P = 0.01$

Abbreviations: NS – nonsignificant, others – see TABLE 3

inflammation in the gastrointestinal tract. Rimola et al.[19] demonstrated that these variables were among the most accurate predictors of an active CD when compared with endoscopy.[8,9,20] On the other hand, it is also known that the enhancement pattern can be predictive of active bowel inflammation. A hyperintense signal in the mucosa and serosa, in contrast to the hypointense signal from submucosal edema and the muscle layer, gives a characteristic layered appearance on T_1-weighted fat suppressed sequence.[8,9,20] The fibrotic transformation of the gut wall is often characterized by a more homogenous enhancement after contrast administration.[20] The presence and the size of ulcerations are also known to be one of the most sensitive imaging features of active CD. MRE is also an accurate tool for the detection of bowel stenosis, which is believed to be a consequence of an active disease either due to inflammatory edema of the gut wall or fibrotic destruction.[21] Moreover, a prestenotic dilatation of the gut reflects the intensity of stenotic complication, being a structural consequence of gut wall narrowing.[8,9,21] Another phenomenon strongly associated with inflammatory CD activity is a fibrofatty proliferation (fat wrapping or "creeping fat") of the mesentery around the inflamed bowel segment.[8,9] This is very often accompanied by the engorgement of the mesenteric vessels supplying the inflamed bowel loop (comb sign).[8,9] Also, the enlargement and contrast enhancement of the mesenteric lymph nodes assessed mainly on T_1-weighted sequences is believed to be a sensitive MRE symptom of an active CD.[8,9,22] Complications such as enteroenteric, enterovisceral, and enterocutaneous fistulas reflecting the extensive destruction of the digestive tract in CD can also be detected by MRE.[8,9] However, it should be mentioned that according to the more recent data, a dynamic assessment of CD activity in MRE might be superior to a static evaluation.[23]

To evaluate the usefulness of the proposed SEAS-CD, we first compared it with the score assessing the endoscopic activity in the same disease location. This was our gold standard, because the ileum is the only part of the small bowel that can be assessed both by routine ileocolonoscopy and by MRE. In the validation group, we demonstrated a significant correlation between the ileal SEAS-CD and ileal SES-CD. This finding shows that our score is reliable in the evaluation of CD activity, and it provides the basis for the hypothesis that this correlation would also be strong in the jejunum. Moreover, a subanalysis revealed that disease extent, mesenteric lymphadenopathy, and bowel thickening assessed by MRE were the strongest predictors of active ileal disease. Interestingly, among other biochemical markers, we only found a correlation between the SEAS-CD and platelet count. However, it is well known that functional and structural disturbances of the platelet count are observed in inflammatory bowel diseases, and that it is a sensitive parameter reflecting CD activity.[24] The lack of correlation of the total and ileal SEAS-CD with the total SES-CD, CDAI, as well as with other biochemical parameters was to be expected, considering that some of the patients in this group also had colonic CD. This fact affects the SES-CD, CDAI, and blood inflammatory markers, but obviously does not affect the SEAS-CD score.

To eliminate this effect and to perform a reliable comparison between the clinical and laboratory data with our MRE score, we analyzed only patients with small-bowel CD. A significant correlation was then noted between the SEAS-CD and CDAI, as well as with the majority of biochemical markers of CD activity.

Another question is whether MRE allows to differentiate an inflammatory pattern of CD from its inactive form. In our study, the SEAS-CD did not allow to differentiate between the 2 groups defined as inactive or active by C-reactive protein (CRP) concentration (data not shown). However, it is questionable whether there is a perfect marker reflecting the disease behavior in CD. The only reliable method in the assessment of CD pattern is a direct intraoperative visualization together with histological examination. This was investigated by Schill et al.[25] who showed that MRE is an excellent tool for precise estimation of different CD patterns. Interestingly, we also observed a significant inverse correlation between the SEAS-CD and blood albumin levels. In this case, hypoalbuminemia could be caused

TABLE 5 Correlations between the Simple Enterographic Activity Score for Crohn's Disease, the Global Crohn's Disease Activity Score, and clinical, endoscopic, and biochemical findings in patients with ileocolonic Crohn's disease

	Total SEAS-CD	Ileal SEAS-CD	SES-CD	Global CD Activity Score
total SEAS-CD	none	$r = 0.9$ $P < 0.0001$	NS	$r = 0.37$ $P = 0.003$
ileal SEAS-CD	$r = 0.9$ $P < 0.0001$	none	NS	$r = 0.37$ $P = 0.003$
SES-CD	NS	NS	none	$r = 0.72$ $P < 0.0001$
Global CD Activity Score	$r = 0.37$ $P = 0.003$	$r = 0.37$ $P = 0.003$	$r = 0.72$ $P < 0.0001$	none
CDAI	NS	NS	$r = 0.37$ $P = 0.008$	$r = 0.37$ $P = 0.01$
CRP	NS	NS	$r = 0.43$ $P = 0.0005$	$r = 0.37$ $P = 0.003$
ESR	NS	NS	$r = 0.39$ $P = 0.001$	$r = 0.31$ $P = 0.01$
RBC	NS	NS	NS	NS
Hb	$r = –0.18$ $P = 0.07$	NS	$r = –0.39$ $P = 0.001$	$r = –0.39$ $P = 0.002$
Ht	$r = –0.2$ $P = 0.06$	NS	$r = –0.3$ $P = 0.02$	$r = –0.3$ $P = 0.007$
WBC	NS	NS	NS	NS
PLT	$r = 0.24$ $P = 0.01$	$r = 0.25$ $P = 0.007$	NS	$r = 0.24$ $P = 0.06$
fibrinogen	NS	NS	$r = 0.36$ $P = 0.009$	NS
total protein	NS	$r = –0.2$ $P = 0.06$	NS	NS
albumin	$r = –0.18$ $P = 0.06$	$r = –0.18$ $P = 0.06$	$r = –0.24$ $P = 0.06$	NS

Abbreviations: see TABLES 3 and 4

both by the inflammatory burden of CD and by the extent of the lesions and small-bowel CD location in that malnutrition and increased protein loss into the gut lumen are common with this type of CD. In conclusion, our analysis shows that the SEAS-CD reflects both the clinical and biochemical activity of CD in patients with small-bowel CD.

As shown above, the SEAS-CD allows for the objective assessment of the inflammatory activity of small-bowel CD. It is especially important in the assessment of the effectiveness of various treatments, because the CDAI and CRP reflect CD activity only subjectively (CDAI) or only indirectly (CRP).[3] However, it must be emphasized that a large proportion of patients also have colonic location of CD. In this group of patients, classical MRE examination is not a useful diagnostic tool for the assessment of colonic inflammatory activity because of insufficient large bowel distension in the majority of the cases. However, MRE still remains a useful cross-sectional imaging technique, first of all, in the evaluation of small bowel inflammatory lesions in CD.[8] On the other hand, the intubation of the ileum is not always technically possible during colonoscopy; hence, this investigation is considered a first-choice diagnostic procedure in the case of colonic CD. Considering that the ileocolonic location of inflammatory lesions in CD is most common, it is essential to perform both investigations, endoscopy and MRE, in everyday clinical practice to be able to fully assess the extent and activity of CD.

However, the question remains of whether it is possible to quantify the total activity of CD, including inflammatory lesions in the small and large intestines. As we confirmed in this study, the proposed SEAS-CD is useful in the estimation of small-bowel CD activity. Undoubtedly, the SES-CD remains a useful objective tool for the assessment of endoscopic colonic CD severity. This was the reason why we constructed the Global Crohn's Disease Activity Score by summarizing the total SEAS-CD and colonic SES-CD. A statistical analysis revealed that the Global Crohn's Disease Activity Score correlated with the CDAI and with the majority of the biochemical markers. In our opinion, the use of this score could improve and optimize objective monitoring of patients with CD, primarily those treated with immunosuppressants or biological agents. In both

treatment options, a dynamic and quantified assessment of the disease progression or regression is crucial to make proper decisions as to whether to continue, discontinue, or change the therapy.

Our study has several limitations. First of all, our analysis was retrospective. A prospective study would be essential to validate the usefulness of the SEAS-CD, especially in comparison with endoscopy. However, in our opinion, the results of this study are convincing enough to hypothesize that SEAS-CD reliably reflects CD severity. Finally, the MRE results were assessed only by 1 examiner; thus, there was no evaluation of interobserver agreement. However, other studies have shown that this agreement is high, especially in large university radiological centers.[8] We would also like to emphasize that our radiologist is highly experienced in this type of MRE technique.

In conclusion, we believe that the simplicity of the SEAS-CD will encourage its wider use in everyday clinical practice. This, in turn, could improve the quality of care in patients with CD, especially in those treated with drugs that have the potential of healing the gut, such as immunosuppressive and biological agents.

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Prosta skala aktywności choroby Leśniowskiego-Crohna w enterografii – porównanie z wynikami badań endoskopowych, biochemicznych i z aktywnością kliniczną choroby

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SŁOWA KLUCZOWE

enterografia rezonansu magnetycznego, ileokolonoskopia, nieswoiste zapalenia jelit

STRESZCZENIE

WPROWADZENIE Enterografia rezonansu magnetycznego (*magnetic resonance enterography* – MRE) jest uważana za wiarygodne badanie do oceny aktywności choroby Leśniowskiego-Crohna (ChLC) w jelicie cienkim. Brakuje jednak skal służących obiektywizacji wyników MRE, które mogłyby znaleźć zastosowanie w codziennej praktyce lekarskiej.

CELE Celem badania było skonstruowanie i ocena przydatności klinicznej prostej skali oceniającej aktywność ChLC w MRE (Simple Enterographic Activity Score for Crohn's Disease – SEAS-CD).

PACJENCI I METODY Dokonano retrospektywnej analizy wyników badań MRE wśród 122 pacjentów z ChLC. Aktywność choroby w MRE oceniano za pomocą skali SEAS-CD. Punktem odniesienia była ocena endoskopowa według skali Simple Endoscopic Score for Crohn's Disease (SES-CD). Badano korelacje między SEAS-CD a wynikami badań endoskopowych, klinicznych i biochemicznych. Zaproponowano także skalę do oceny całkowitej aktywności ChLC (Global Crohn's Disease Activity Score) poprzez zsumowanie wyników SEAS-CD i SES-CD obliczonych w zakresie jelita grubego.

WYNIKI W grupie walidacyjnej (n = 62) wykazano korelację między aktywnością ChLC w jelicie krętym ocenianą równolegle za pomocą skali SES-CD oraz SEAS-CD (r = 0,72; p <0,0001). U chorych z lokalizacją zmian w jelicie cienkim wykazano istotną korelację SEAS-CD z: indeksem aktywności klinicznej ChLC (Crohn's Disease Activity Index – CDAI), stężeniem białka C-reaktywnego (*C-reactive protein* – CRP), odczynem Biernackiego (OB), stężeniem hemoglobiny (Hb), liczbą płytek krwi oraz stężeniem albuminy. W przypadku zmian zarówno w jelicie cienkim i grubym, całkowita aktywność ChLC korelowała z CDAI, CRP, OB, Hb i hematokrytem.

WNIOSKI SEAS-CD jest przydatnym narzędziem do oceny ilościowej aktywności ChLC w jelicie cienkim dokonanej za pomocą MRE. Ocena całkowitej aktywności ChLC może być pomocna w ocenie nasilenia zmian chorobowych u pacjentów z zajęciem jelita cienkiego i grubego.

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Praca wpłynęła: 23.03.2013.
Przyjęta do druku: 13.06.2013.
Publikacja *online*: 14.06.2013.
Nie zgłoszono sprzeczności interesów.
Pol Arch Med Wewn. 2013; 123 (7-8): 378-385