Bratisl Lek Listy 2009; 110 (4)
253 – 257

CLINICAL STUDY

A retrospective evaluation of the history of treated ulcerative colitis

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Abstract: *Background:* The exact definition of natural history is important in ulcerative colitis for both clinicians and patients, because it may play a role in the development of treatment strategies for physicians and in the future prospect for patients. In this study, we review the clinical evolution of patients with ulcerative colitis and document the probable risk factors that make the patients undergo colectomy.
Method: The patients with ulcerative colitis followed in our gastroenterology department between 1993 and 2003 were retrospectively reviewed.
Findings: Early age at the onset of disease was found to be related to higher endoscopic disease activity and more frequent colectomy. Colectomy was also more frequent in pancolitis and extensive colitis.
Conclusion: Early onset of ulcerative colitis and extensive disease are among the most remarkable determinant factors affecting the indication for colectomy *(Fig. 2, Tab. 15, Ref. 16).* Full Text (Free, PDF) *www.bmj.sk.*
Key words: ulcerative colitis, endoscopic activity, clinical progress.

Ulcerative colitis (UC), is an inflammatory bowel disease affecting the mucosa and submucosa of the colon. Inflammation has been explained by immunologic mechanisms triggered by environmental factors in a genetically susceptible patient. These immunologic mechanisms cause an intolerance to intestinal microenvironment and flora. Ulcerative colitis has been one of the major concerns regarding its natural history and clinical course since it has been first described. In this study, we present its treatment history and progression in patients with UC (1–10).

Patients and methods

The patients with ulcerative colitis followed in our gastroenterology department between 1993 and 2003 were reviewed retrospectively. The patients whose diagnoses were proven according to clinic, endoscopic, and pathologic findings were included in the study. The patients whose follow-up period was shorter than 5 years were excluded. The clinical patterns and endoscopic activitiy index (EAI) were documented at the diagnosis, at first and fifth years after diagnosis. Demographic features of the patients were also investigated.

Extension of the disease was defined as follows:

1) Pancolitis (whole colon involved)
2) Extensive colitis (disease extending proximal to splenic flexure)
3) Left-sided colitis (disease confined to splenic flexure)
4) Distal-type colitis (proctosigmoiditis).

EAI scores were obtained from Rachmilewits endoscopic severity index (Tab. 1).

Disease type was defined according to as follows:

Type 1: *Acute fulminant*
Type 2: *Chronic intermitent (the patients with attacks and remission periods)*
Type 3: *Chronic persistent (the ones steroid dependent)*
Type 4: *Single attack*
Type 5: *The ones needing colectomy at first attack.*

The treatment strategy was not changed during the study, meaning that sulfasalasine and mesalamine were given for remission induction and maintenance. Glucocorticoid was given at disease activation topically or systemically. Steroids were given

Tab. 1. Rachmilewits Endoscopic Activity Index.

1. Granulation	none	0
	yes	2
2. Vascularity	normal	0
	decreased	1
	disappeared	2
3. Fragility	none	0
	with touch	2
	spontaneous	4
4. Mucosal findings	none	0
(erosion, exudate,	mild	2
erosion, ulser)	severe	4

Total score ≥4 active, <4; remission)

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Tab. 2. Disease localisation in relation to gender effect.

Localisation	Female (n, %)	Male (n, %)	Total (n, %)
Pancolitis	24 (15.8%)	29 (17.3%)	53 (16.6%)
Extensive colitis	23 (15.1%)	21 (12.5%)	44 (13.8%)
Left-sided colitis	39 (25.7%)	58 (34.5%)	97(30.3%)
Distal type colitis	66 (43.4%)	60 (35.7%)	126(39.4%)
Total	152	168	320

Tab. 3. Colitis extension and age of disease onset (21 patients were not included the table below due to early colectomy and other factors).

Extension	n	Mean age and standard deviation	p
Present	249	37.78±13.870	NS(p>0.05)
Absent	50	37.54±13.879	

Tab. 4. Disease types distribution.

Type	n (%)
Acute fulminant	2 (0.6%)
Chronic intermittent	220 (68.8%)
Chronic persistent	43 (13.4%)
Single attack	52 (16.3%)
Colectomy at first attack (refractory to medical treatment)	3 (0.9%)
Total	320 (100%)

Tab. 5. Disease type in relation to age of onset.

Type	n	Mean age and standard deviation	Age interval (year)	p
Chronic intermittent	220	38.54±13.878	15–80	<0.05
Chronic persistent	43	31.02±12.070	13–58	

generally in short periods and stopped taperingly. Colectomy was considered when the medical therapy was unsuccessful.

SPSS 11.0 was used in data analysis. „Student's t-test" and chi-square test was used and p•0.05 was considered statistically meaningful.

Findings

In our study, 152 female and 168 male patients (total: 320) with the follow-up period of 5 years were included. Mean age in females and males was 35.23±13.40 (15–80) years and 39.25±14.14 (13–80) years, respectively. Although the mean age was similar between sexes, females showed a relatively early onset of UC (p<0.05). The localisation of disease in relation to gender at diagnosis was shown in Table 2 (p>0.05).

Tab. 6. Relation between age of onset of disease and disease localisation.

Localisation	n	Age (year) (mean±SS)	p
Pancolitis	53	34.21±15.563 NS	(p>0.05)
Extensive colitis	44	37.16±14.400	
Left-sided	97	38.78±14.444	
Distal	126	37.61±12.495	
Total	320	37.34±13.917	

Tab. 7. Disease extension and gender relation (21 patients were not included the table below due to early colectomy and other factors).

Extension	Female	Male	Total (n)	p
Absent	120	129	249	NS
Present	24	26	50	
Total	144	155	299	

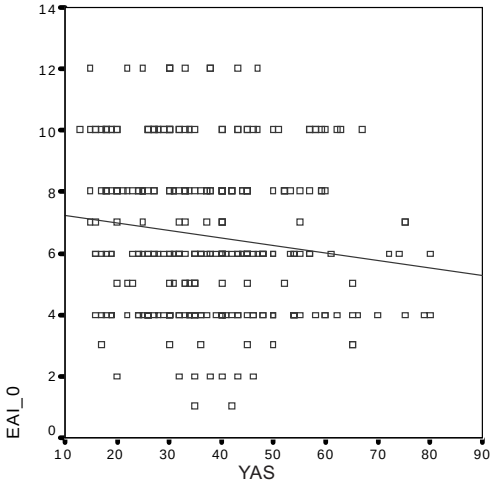

Fig. 1. Age of onset and endoscopic activity index.

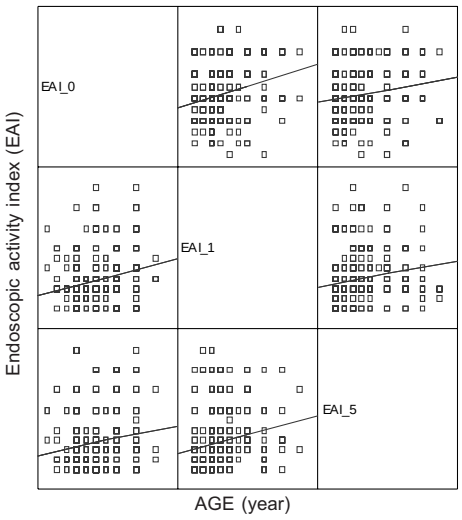

Fig. 2. Endoscopic activity index in first and fifth years.

Tab. 8. Localisation at the onset of disease in relation to disease type.

Localisation	Acute fulminant	Persistent active	Chronic intermittent	Single attack	Colectomy at first attack	Total	p
Pancolitis	2	16	28	4	3	53	<0.000
Extensive	0	5	35	4	0	44	
Left-sided	0	13	67	17	0	97	
Distal	0	9	90	27	0	126	
Total	2	43	220	52	3	320	

Tab. 9. Colectomy rate and age of onset of the disease.

Colectomy	n	Mean age±standard deviation	p
Absent	281	38.23±14.011	<0.05
Present	39	30.95±11.482	

Tab. 10. Colectomy rate and localisation at the time of diagnosis.

Localisation	Cases underwent colectomy (n, %)	Cases not underwent colectomy (n, %)	Total (n)	p
Pancolitis	33 (62.3%)	20 (37.7%)	53	<0.05
Extensive colitis	40 (90.9%)	4 (9.1%)	44	
Left-sided	89 (91.8%)	8 (8.2%)	97	
Distal	119 (94.4%)	7 (5.6%)	126	
Total	281 (87.8%)	39 (12.2%)	320	

Tab. 11. EAI at age of diagnosis and colectomy.

Colectomy	n	Mean EAI±standard deviation	EAI range	p
Done	281	6.27±2.36	1–12	<0.05
Not done	39	9.03±1.977	5–12	

Tab. 12. The presence of extension and colectomy relation.

Extension	Colectomy done (n)	Colectomy not done (n)	Total (n)	p
Absent	236	13	249	NS
Present	45	5	50	
Total	281	18	299	

Tab. 13. Disease extension and the localisation relationship (62 patient having either with pancolitis or unclear extension history were not included).

Localisation	Extension absent (n)	Extension present (n)	Total (n)	p
Extensive colitis	38	4	42	NS
Left-sided	68	23	91	
Distal	102	23	125	
Total	208	50	258	

Tab. 14. Colectomy and disease type.

Type	No colectomy (n)	Colectomy done (n)	Total (n)	p
Chronic intermittent	217	3	220	<0.05
Persistent active	16	27	43	
Total	233	30	263	

Tab. 15. Gender and colectomy.

	No colectomy	Colectomy done	Total (n)	p
Female	137	15	152	NS
Male	144	24	168	
Total	281	39	320	

Disease extension was observed in 50 patients in 5 years of follow-up. Their age age at the disease onset in relation to the presence of extension of colitis is shown in Table 3 ($p>0.05$).

Disease types are shown in Table 4. Two patients with fulminant disease (with toxic megacolon) and 3 patients who were refractory to medical treatment in their first attack of disease were subdued to colectomy (Tab. 4). The 52 patients with single attack of UC in 5 years of follow-up were mostly of distal type (Tab. 5). These patients responded well to glucocorticoid and mesalasine therapy and were maintained in remission with mesalasine. Disease types in relation to age of disease onset is shown in Figure 1. The patients with chronic persistent disease type had their onset at a relatively early age compared to the intermittent form of the diasease ($p<0.05$). Age at the onset of disease and initial EAI relation is shown in Figure **2**. It was seen that EAI of patients with their onset occurring at early age was significantly higher than the ones with a relatively late age at onset ($p<0.05$). There was no significant relation between the age of onset and disease localisation ($p>0.05$) (Tab. 6). Gender had no effect on disease extension ($p>0.05$) (Tab. 7). The relation between the localisation at onset and the types of disease is shown in Table 8. There was a significant relation between these features ($p<0.05$).

Colectomy was done in 39 cases. The yearly distribution of colectomies was as follows: 20 in first year, 5 cases in second

year, 7 cases in third year, 4 cases in fourth year, 3 cases in the fifth year. Colectomy rate was higher in patients with earlier onset of disease ($p<0.05$) (Tab. 9). Accordingly, colectomy was found to be higher in patients with pancolitis ($p<0.05$) (Tab. 10). Also, in patients with higher EAI at age of onset of disease was found to underwent more frequently colectomy ($p<0.05$) (Tab. 11). It was seen that there was no significant relationship between the presence of extension and colectomy rate ($p>0.05$) (Tab. 12). The relationship between the localisation at the time of diagnosis and the disease extension was seen in Table 13 ($p>0.05$). The cases with persistently active ulcerative colitis had significantly higher colectomy rates when compared to cases with intermittent disease ($p<0.05$) (Tab. 14). Gender had no effect on colectomy rate ($p>0.05$) (Tab. 15).

Discussion

UC is known to have an alternating activity going through activations and remissions. The patients have usually intermittent disease activity periods, but on the other hand there are some cases who need colectomy even at the first disease attack.

The mean age is 37.34±13.917 in our study that is compatible with literature. Because, UC is seen in age intervals between 20 and 40 years.

At the age of onset of UC in our cases, the disease localisation distribution was as follows: pancolitis 16.6 %, extensive colitis 13.8 %, left-sided 30.3 %, distal colitis 39.4 %. Farmer et al reported these distrubiton as follows: pancolitis and extensive colitis 36.7 %, 17 % left-sided and 46.2 % distal type. In their study, Farmer et al also defined their population's age distribution as follows: pancolitis and extensive colitis 27.6±15.0 years, left-sided 32.0±15.6 years, distal type 35.8±15.9 years. This age distribution corresponds with that in our study since we similarly observed that our cases with pancolitis and extensive colitis had their diagnosis of UC stated at earlier age when compared to left-sided colitis (37.16±14.40 and 38.78±14.44 years) (8).

In our studied population, the localisation and gender distribution was as follows: pancolitis and extensive colitis in 48.4 % of females and 51.6 % of males, left-sided in 40 % of females and 60 % of males, distal colitis in 52.3 % of females and 47.7 % of males. These results were compatible with that of Farmer et al: pancolitis in 45.1 % of females and 54.9 % if males, left-sided in 45.3 % of females and 54.7 % of males, distal type in 54.3 % of females and 45.7 % of males (8).

We found that the colectomy rate in 5 years of disease was higher in patients with earlier onset of disease when compared the the ones with later onset. However, Leijonmark et al suggested that age at diagnosis had no effect on colectomy rates in 30 years of follow-up. We believe that, the difference from the result of Leijonmark is due to their longer follow-up period (9).

We observed that 20 cases (6.2 %) needed colectomy in first year and 5 cases in second year, 7 cases in third year, 4 cases in fourth year and 3 cases in fifth year. The Denmark study rates were reported as 9 % in first year and 3 % in following years. The colectomy rate in our patients with pancolitis in 37.7 % in first year that was similar to that of the Denmark study (35 %). Accordingly, colectomy rates in our distal colitis patients and the Denmark study were 5.6 % and 9 % respectively (5).

The colectomy rate in overall 5 years of follow-up was 12.2 % and in the first year it was 6.2 %. The report showing the one of the highest colectomy rates in literature was the Copenhagen study that was also one of the studies documenting the best prognosis outcome (5). In the Copenhagen study, cummulative colectomy rate was 31 % in 18 years. Also, in first year, colectomy rate was 10 % and in second year, it was 3 %. In Stockholm study, the results were somewhat similar such as: 10 % in first year, 21 % in tenth year and 45 % in 25 years of follow-up (11, 12).

It was seen that there was a relation between EAI at the time of diagnosis and colectomy rates. We speculate that the higher EAI at the time of diagnosis may be a risk factor in colectomy necessity during the follow-up.

There was no relationship between the localisation of disease and clinical course. That result is compatible with the literature and results of Sinclair and Watts et al as well (13, 14).

Langholz et al documented that 90 % of UC patients goe in chronic intermittent pattern. Hodghson showed this rate was 80–90 %. In our study, 68.8 % of cases showed chronic intermittent course and 16.3 % showed a single attack and long-term remission in 5 years of follow-up (15). We believe should our follow-up period be 25 years, the percentage of cases with chronic intermittent course would be closer to that of Langholz et al (16).

In conclusion, early age at onset of disease was related to higher EAI and more frequent colectomy. Colectomy was more frequent in pancolitis and extensive colitis.

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Received June 9, 2008.
Accepted January 23, 2009.