

Predictors of type of colectomy in ulcerative colitis patients

Taxonera C¹, Calvet X^{2,3}, Gisbert JP^{2,4}, Rodrigo L⁵, Bujanda L^{2,6}, Muñoz F⁷, Ponce M^{2,8}, Gomez-Camacho F⁹, Estelles J¹⁰, Oyagüez I¹⁰, Sabater FJ¹¹, on behalf of COSCOL study investigators

¹IBD Unit, Hospital Clínico, Madrid, Spain; ²CIBEREHD, Instituto de Salud Carlos III; ³Hospital Parc Taulí, Sabadell, Spain; ⁴Hospital de La Princesa, Madrid, Spain; ⁵Hospital Central de Asturias, Oviedo, Spain; ⁶Hospital Donostia, San Sebastián, Spain; ⁷Hospital Virgen Blanca, León, Spain; ⁸Hospital La Fe, Valencia, Spain; ⁹Hospital Reina Sofía, Córdoba, Spain; ¹⁰Pharmacoeconomics & Outcomes Research Iberia, Madrid, Spain; ¹¹Schering-Plough S.A., Madrid, Spain

Introduction

- Ulcerative colitis (UC) is treated initially with medical treatment. Currently, the availability of new therapeutic options have improved the approach in patients with UC
- In many cases colectomy may be required when medical therapy fails
- Currently, restorative proctocolectomy with ileal pouch anal anastomosis (IPAA) is the gold standard surgery for patients with UC undergoing colectomy, avoiding the negative aspects of a permanent ileostomy (Richards 2001)

Objective

- To establish the predictors of type of colectomies performed for ulcerative colitis patients in Spain (COSCOL Study):
 - Predictors of functional proctocolectomy with ileal pouch anal anastomosis (gold standard)
 - Predictors of carrying a permanent ileostomy
- Data available on 209 patients with total colectomy due to ulcerative colitis
- Significant differences (p<0.05) between proctocolectomy with IPAA versus other colectomies were found in the following parameters:
 - Age at the time of colectomy
 - Surgery performed due to treatment failure
 - Surgery performed as an elective procedure

Methods

- **Study design**
 - Retrospective audit undertaken at 35 centres which reviewed the medical records of UC patients who had undergone total colectomy between 2000 and 2005
 - Time horizon: patients were followed up for a period of at least 2 years after the initial colectomy
- **Statistical analysis**
 - To define the predictors of patients undergoing proctocolectomy with IPAA were applied:
 - Non-parametric test for the categorical variables
 - Parametric test for the continuous variables
 - Logistic regression was performed to assess the predictors factors of:
 - Proctocolectomy with IPAA (gold standard)
 - Permanent ileostomy
- **Predictors of type of surgery tested were:**
 - Age at time of colectomy
 - Sex: female vs. male
 - Duration of the disease
 - UC extension, according to Montreal classification: left vs extensive
 - Study level of patients: without studies and primary school vs. secondary school and university studies
 - Colectomy due to treatment failure or severe complications
 - Colectomy performed as an emergency procedure vs. elective
 - Size of hospital: <750 beds vs. >750 beds

- Only age at the time of colectomy (younger patients), and surgery performed as an elective procedure were significant predictors (p<0.05) of patients ending in a proctocolectomy with IPAA

Table 1. Socio-demographic and baseline characteristics. COSCOL Study patients

	Value/N	Percentage
Number of patients	209	100
Females	93	44.5
Age, mean (SEM) (years)	41.6 (13.2)	
Years since diagnosis, mean (SEM)	5 (6.3)	
Smoking habit		
Smoker	18	8.6
Non-smoker	128	61.2
Ex-smoker	61	29.2
Use of immunomodulators	143	68.4
Azathioprine / mercaptopurine / methotrexate only	44	30.8
Cyclosporine only	40	28.0
Both	59	41.2
Extension		
Left-sided	41	19.6
Extensive	168	80.4
Proctitis	0	0
Reason for colectomy		
Treatment failure	131	62.7
Severe complications	61	29.2
Other	17	8.1
Colectomy performed as an emergency procedure	74	35.4

Table 2. Type of colectomy

	N	Percentage
A - Proctocolectomy with ileal pouch anal anastomosis (IPAA)	113	54.1
B - Proctocolectomy with ileostomy	64	30.6
C - Proctocolectomy with IPAA and ileostomy	7	3.3
D - Colectomy with ileorectal anastomosis	11	5.3
E - Colectomy with ileostomy and rectal remnant	14	6.7
Total	209	100

Table 3: Statistics of proctocolectomy with IPAA versus others colectomies

	A	B + C + D + E	P value
Age at time of colectomy			
Mean	38.17	45.65	0.001
Duration of the disease			
Mean	4.79	5.21	0.630
Sex			
Male	57 (50.4%)	59 (61.5%)	0.125
Female	56 (49.6%)	37 (38.5%)	
Study level of patients			
Without or Primary Studies	40 (40.0%)	46 (51.1%)	0.145
High school or University	60 (60.0%)	44 (48.9%)	
UC extension			
Left	20 (17.7%)	21 (21.9%)	0.487
Extensive	93 (82.3%)	75 (78.1%)	
Reason for colectomy			
Treatment failure	80 (70.8%)	51 (53.1%)	0.010
Severe complications	33 (29.2%)	45 (46.9%)	
Colectomy performed as an emergency procedure vs elective			
Urgent	30 (26.5%)	44 (45.8%)	0.006
Elective	83 (73.5%)	52 (54.2%)	
Size of hospital			
<750	25 (26.0%)	26 (23.0%)	0.631
>750	71 (74.0%)	87 (77.0%)	

A - Proctocolectomy with ileal pouch anal anastomosis (IPAA)
B - Proctocolectomy with ileostomy
C - Proctocolectomy with IPAA and ileostomy
D - Colectomy with ileorectal anastomosis
E - Colectomy with ileostomy and rectal remnant

Table 4: Statistics of proctocolectomy with IPAA and colectomy with ileorectal anastomosis versus others colectomies

	A + D	B + C + E	P value
Age at time of colectomy			
Mean	39.24	45.05	0.002
Duration of the disease			
Mean	5.17	4.71	0.601
Sex			
Male	62 (50.0%)	54 (63.5%)	0.066
Female	62 (50.0%)	31 (36.5%)	
Study level of patients			
Without or Primary Studies	48 (43.2%)	38 (48.1%)	0.555
High school or University	63 (56.8%)	41 (51.9%)	
UC extension			
Left	21 (16.9%)	20 (23.5%)	0.288
Extensive	103 (83.1%)	65 (76.5%)	
Reason for colectomy			
Treatment failure	86 (69.4%)	45 (52.9%)	0.020
Severe complications	38 (30.6%)	40 (47.1%)	
Colectomy performed as an emergency procedure vs elective			
Urgent	32 (25.8%)	42 (49.4%)	0.001
Elective	92 (74.2%)	43 (50.6%)	
Size of hospital			
<750	23 (27.1%)	28 (22.6%)	0.513
>750	85 (72.9%)	96 (77.4%)	

A - Proctocolectomy with ileal pouch anal anastomosis (IPAA)
B - Proctocolectomy with ileostomy
C - Proctocolectomy with IPAA and ileostomy
D - Colectomy with ileorectal anastomosis
E - Colectomy with ileostomy and rectal remnant

Table 5: Logistic regression parameters of proctocolectomy with IPAA versus others colectomies

Predictor factors	B	P value	Exp(B)	CI 95% Exp(B)	
				Lower	Upper
Age at time of colectomy	-0.054	0.014	0.948	0.921	0.975
Duration of the disease	0.005	0.846	1.005	0.955	1.058
Sex	0.306	0.348	1.358	0.717	2.571
Study level of patients	0.004	0.991	1.004	0.512	1.967
UC extension	-0.076	0.856	0.926	0.406	2.112
Reason for colectomy (treatment failure or severe complications)	-0.188	0.667	0.829	0.353	1.948
Colectomy (emergency procedure vs elective)	-0.947	0.037	0.388	0.159	0.946
Size of hospital	-0.225	0.553	0.798	0.379	1.681
Intercept	2.657	0.635	14.256		

B= Estimated Parameter Value

Table 6: Logistic regression parameters of proctocolectomy with IPAA and colectomy with ileorectal anastomosis versus others colectomies

Predictor factors	B	P value	Exp(B)	CI 95% Exp(B)	
				Lower	Upper
Age at time of colectomy	-0.047	0.001	0.954	0.928	0.981
Duration of the disease	0.023	0.394	1.023	0.971	1.079
Sex	0.405	0.219	1.499	0.786	2.860
Study level of patients	0.196	0.576	1.217	0.611	2.421
UC extension	-0.287	0.494	0.751	0.330	1.709
Reason for colectomy (treatment failure or severe complications)	-0.118	0.789	1.126	0.473	2.677
Colectomy (emergency procedure vs elective)	-1.270	0.005	0.281	0.115	0.688
Size of hospital	-0.275	0.465	0.760	0.364	1.588
Intercept	2.469	0.000	11.808		

B= Estimated Parameter Value

- Although restorative proctocolectomy with ileal pouch anal anastomosis has become the gold standard surgery for ulcerative colitis, it was only performed in 54% patients
- Only age (younger patients) and elective procedure were predictors of final proctocolectomy with ileal pouch anal anastomosis
- Older patients with colectomy performed as an emergency procedure were more likely to carry a permanent ileostomy