

Supplemental material

Table A1 -Variables, labels and codes in our dataset.

Name	Label	Codes
Patient Age	Age	
Patient Gender	Gender	female - male
Indication for colonoscopy	Indication	screening - symptoms - surveillance
Inpatient setting	inpatient	inpatient - outpatient
Practice setting	practice	academic - general hospital
Antithrombotic Therapy	Therapy	yes - no
Endoscopic shape of polyps	Morphology	Pedunculated (either pedunculated or semi-pedunculated) - Sessile - LST (either granular or non-granular lesions)
The size of polyp	Diameter	
Polyp location in the large intestine	Colon location	Distal colon (Splenic Flexure, Descending, Sigmoid Colon, and Rectum) - Proximal colon ((Cecum, Ascending, Hepatic Flexure, and Transverse Colon)
Endoscopic removal of polyp	Polyp Removed	yes - no (referred for surgical removal or referred to specialized colonoscopy centers)
The removal modality	Modality	standard polypectomy; EMR or UEMR; ESD
The resection technique	Technique	en bloc - piecemeal
Tattooing practice	tattooing	yes - no
Bleeding prophylaxis prior to colonoscopy	Pre-colonoscopy Prophylaxis	yes - no
Bleeding prophylaxis after colonoscopy	Post-colonoscopy Prophylaxis	yes - no
Histology of polyp	Histology	CRC infiltrating - adenocarcinoma - tubular adenoma - tubulovillous or villous adenoma - SSA - hyperplastic or

		benign lesions
Grade of dysplasia	Dysplasia	high grade - low grade
Indications after a resected polyp	Management of polyp	surgery - surveillance colonoscopy - repeat colonoscopy

Correlation Coefficient (Multicollinearity)

Intra-Procedural Bleeding - We examined the correlations between the variables (predictors) in our data set. The goal was to identify those variables which have a strong association. For the purpose of this analysis, categorical variables with n levels were transformed into n-1 dummy variables. The correlation coefficients for all pairs of the study predictors were calculated using Pearson's measurements, with the values ranging from -1 (negative correlation) to 1 (positive correlation). As a general rule, correlation coefficients (in absolute value) between 0.3 and 0.5 indicate variables that have a low correlation. Correlation coefficients less than 0.3 have little if any correlation. Values between 0.7-0.8 indicate moderate correlations, while values of 0.9 or greater indicate strong correlations. Correlation coefficients between predictor variables of $|r| > 0.7$ is an appropriate indicator for when collinearity begins to severely distort model estimation and subsequent prediction. In our datasets all correlation coefficients were < 0.3 (see Figure A1/A2), indicating little correlation.

Figure A1 - Correlation Coefficients between predictors of intra-procedural bleeding for pedunculated polyps. Correlation coefficients less than 0.3 have little if any correlation. Values between 0.3 and 0.5 indicate variables that have a low correlation. Correlation coefficients between predictor variables of $|r| > 0.7$ is an appropriate indicator for when collinearity begins to severely distort model estimation and subsequent prediction.

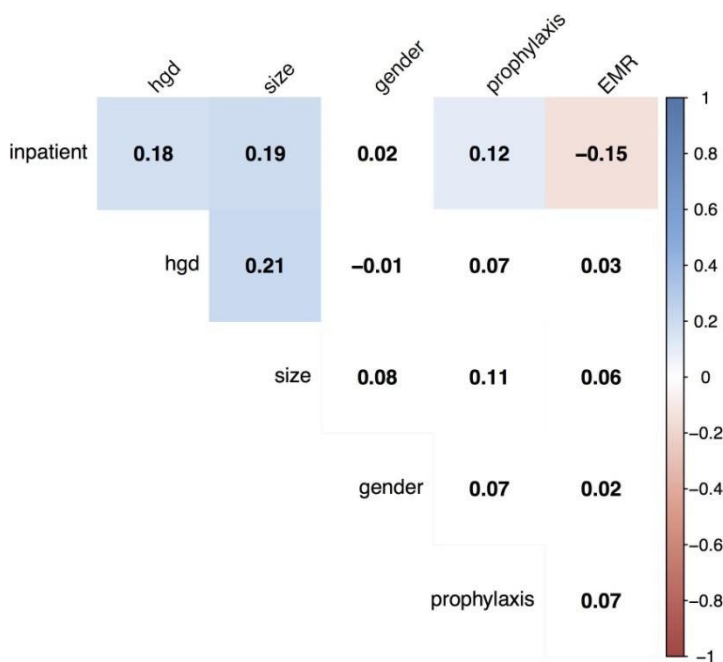
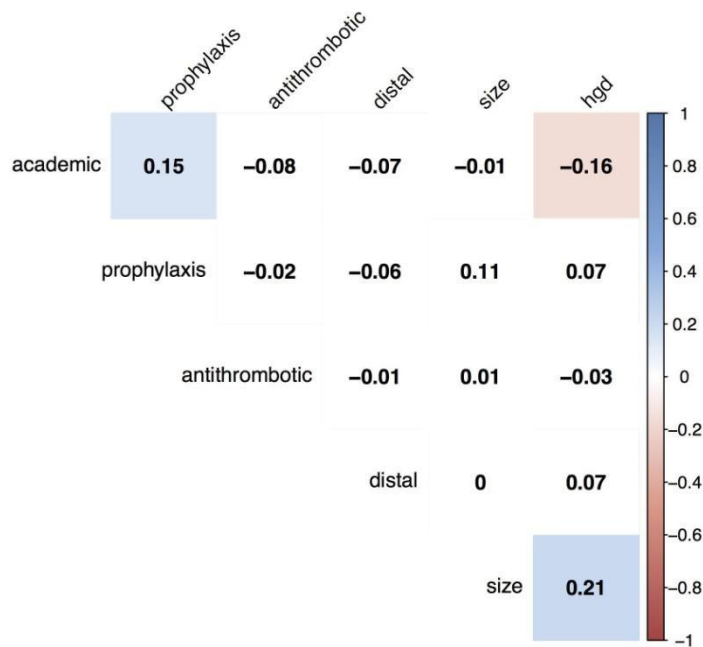


Figure A2 - Correlation Coefficients between predictors of intra-procedural bleeding for non-pedunculated polyps. Correlation coefficients less than 0.3 have little if any correlation. Values between 0.3 and 0.5 indicate variables that have a low correlation. Correlation coefficients between predictor variables of $|r| > 0.7$ is an appropriate indicator for when collinearity begins to severely distort model estimation and subsequent prediction.



Variance Inflation Factor (Multicollinearity)

Multicollinearity refers to a situation in which an explanatory variable within a regression model is correlated with other predictors. The primary test for detecting multicollinearity in a set of predictors is the variance inflation factor (VIF) test. It determines how much of the inflation in the standard error could be caused by collinearity. Variance inflation factors are calculated for each predictor in the regression model. While there is disagreement on the appropriate cutoff for identifying whether the model suffers from multicollinearity, the following rules provide a rough guideline.

1. If $VIF > 1$ and $VIF < 2.5$, (conservative levels) then those explanatory variables are moderately correlated.
2. If $VIF > 2.5$, then those variables are highly correlated.

In our analyses, there was no multicollinearity: all variables have a value of VIF well below 2 (Table A1).

Table A2 - Multivariable analysis for intra-procedural bleeding. Multicollinearity - VIF, variance inflation factor

	Pedunculated Lesions	Non-Pedunculated Lesions
Variable	VIF	VIF
Inpatient setting	1.15	NR
Pre-endoscopy prophylaxis	1.15	1.10
Polyp size	1.10	1.10
Polyp resection (simple polypectomy vs. EMR)	1.10	NE
Practice center (academic vs. general hospital)	NE	1.05
Polyp Dysplasia	1.06	1.09
Colon location (distal vs. proximal)	NE	1.03
Antithrombotic Therapy	NE	1.00

Table A3 - Univariable multinomial regression models explaining patients with delayed bleeding versus patients with immediate bleeding versus non-bleeding patients.

	none vs. delayed Bleeding		none vs. delayed Bleeding	
	Univariate Model		Univariate Model	
	ORs [95% CIs]	P-value	ORs [95% CIs]	P-value
Variable				
Age as continuous	0.97 (0.94-1.01)	0.184	0.97 (0.94-1.00)	0.088
Gender				
Female	1		1	
Male	0.77 (0.33-1.81)	0.554	0.86 (0.40-1.95)	0.744
Indication for colonoscopy				
Diagnostic/surveillance	1		1	
Screening	2.94 (0.98-8.71)	0.051	3.67 (1.40-9.56)	0.008
Polyp size as continuous variable				
Polyp size	0.97 (0.93-1.00)	0.082	0.96 (0.93-0.99)	0.012
Polyp size				
Giant	1		1	
Large	1.80 (0.77-4.20)	0.176	2.44 (1.17-5.09)	0.017
Polyp Morphology				
LST/sessile			1	
Pedunculated	NE		1.22 (0.54-2.75)	0.631
Colon Location				
Proximal	1		1	

Distal	1.53 (0.64-8.64)	0.337	1.48 (0.72-3.03)	0.270
Dysplasia, n (%)				
HGD	1		1	
LGD,	0.97 (0.42-2.23)	0.951	1.06 (0.52-2.17)	0.868
Bleeding prophylaxis before exam				
No	1		1	
Yes	1.00 (0.40-2.45)	0.995	0.89 (0.40-2.10)	0.781
Anesthesiologist present				
No	1		1	
Yes	0.74 (0.31-1.77)	0.497	0.66 (0.31-1.42)	0.290
Antithrombotic therapy (either ongoing or withheld)				
No	1		1	
Yes	0.29 (0.13-0.65)	0.003	0.28 (0.14-0.57)	<0.001
Resection Mode				
EMR/ESD	1		1	
Simple polypectomy	1.89 (0.37-9.58)	0.442	1.92 (0.78-4.71)	0.155
Practice Setting				
General Hospital	1		1	
Academic Hospital	3.31 (0.27-14.24)	0.107	1.49 (0.57-3.92)	0.197
Endoscopy Setting				
Outpatient	1		1	
Inpatient	1.11 (0.48-2.59)	0.805	1.00 (0.47-2.11)	0.417