

Bowel preparation for elective colorectal resection: multi-treatment machine-learning analysis on 6,241 cases from a prospective Italian cohort.

Marco Catarci^{1α}, MD, FACS, Stefano Guadagni^{2, 3}, MD, Francesco Masedu³, PhD, Giacomo Ruffo⁴, MD, Massimo Giuseppe Viola⁵, MD, Felice Borghi⁶, MD, Gianluca Garulli⁷, MD, Felice Pirozzi⁸, MD, Paolo Delrio⁹, MD, Raffaele De Luca¹⁰, MD, Gianandrea Baldazzi¹¹, MD, Marco Scatizzi¹², MD, The Italian ColoRectal Anastomotic Leakage (iCral) study group*.

From the ¹General Surgery Unit, Sandro Pertini Hospital, ASL Roma 2, Roma; ²General Surgery Unit, Università degli Studi dell'Aquila, L'Aquila; ³Department of Biotechnological and Applied Clinical Sciences, Università degli Studi dell'Aquila, L'Aquila; ⁴General Surgery Unit, IRCCS Sacro Cuore Don Calabria Hospital, Negrar di Valpolicella (VR); ⁵General Surgery Unit, Cardinale G. Panico Hospital, Tricase (LE); ⁶Oncologic Surgery Unit, Candiolo Cancer Institute, FPO-IRCCS, Candiolo (TO); ⁷General Surgery Unit, Infermi Hospital, Rimini; ⁸General Surgery Unit, ASL Napoli 2 Nord, Pozzuoli (NA); ⁹Colorectal Surgical Oncology, Istituto Nazionale per lo Studio e la Cura dei Tumori, "Fondazione Giovanni Pascale IRCCS-Italia", Naples; ¹⁰Department of Surgical Oncology, IRCCS Istituto Tumori "Giovanni Paolo II", Bari; ¹¹General Surgery Unit, ASST Ovest Milanese, Legnano (MI); ¹²General Surgery Unit, Santa Maria Annunziata & Serristori Hospital, Florence; Italy.

Corresponding Author:

Stefano Guadagni, MD

Dipartimento di Scienze Cliniche Applicate e Biotecnologiche

Università degli Studi dell'Aquila, L'Aquila, Italy

Via Vetoio, snc; 67100 L'Aquila, Italy

Phone: +39 3339436171;

E-mail: stefano.guadagni@univaq.it; ORCID: 0000-0001-8525-084X

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Table S1: Binary comparison between NBP and oA groups.

Outcomes	Pattern	NBP		oA		Generalized Boosted Regression model OR (95%CI)
		No.	%	No.	%	
s-d-SSI	Yes	125	3.3	10	2.5	0.67 (0.33-1.40) p=.285
	No	3,617	96.7	396	97.5	Reference
Deep wound dehiscence	Yes	8	0.2	3	0.7	3.08 (0.84-11.2) p=.089
	No	3,734	99.8	403	99.3	Reference
Abdominal collection/abscess	Yes	63	1.7	3	0.7	0.35 (0.08-1.51) p=.157
	No	3,679	98.3	403	99.3	Reference
SSIs	Yes	188	5.0	15	3.7	0.66 (0.36-1.21) p=.179
	No	3,554	95.0	391	96.3	Reference
Reoperation	Yes	172	4.6	22	5.4	1.48 (0.86-2.53) p=.158
	No	3,570	95.4	384	94.6	Reference
Anastomotic leakage	Yes	125	3.3	16	3.9	1.61 (0.88-2.94) p=.122
	No	3,617	96.7	390	96.1	Reference
Overall morbidity	Yes	997	26.6	104	25.6	0.93 (0.70-1.23) p=.607
	No	2,745	73.4	302	74.4	Reference
Major morbidity	Yes	198	5.3	31	7.6	2.07 (1.31-3.28) p=.002
	No	3,544	94.7	375	92.4	Reference
Mortality	Yes	32	0.9	2	0.5	0.86 (0.21-3.48) p=.833
	No	3,710	99.1	40	99.5	Reference

NBP: no bowel preparation; oA: oral antibiotics alone; OR: odds ratio; 95%CI: 95% confidence interval; sdiSSIs: superficial and/or deep incisional surgical site infections; SSIs: Surgical Site Infections (sdiSSIs plus deep wound dehiscence plus abdominal collection/abscess).

Table S2: Binary comparison between NBP and MBP groups.

Outcomes	NBP			MBP		Generalized Boosted Regression model OR (95%CI)
	Pattern	No.	%	No.	%	
sdiSSIs	Yes	125	3.3	73	4.9	1.29 (0.81-2.07) p=.289
	No	3,617	96.7	1,413	95.1	Reference
Deep wound dehiscence	Yes	8	0.2	5	0.3	0.75 (0.19-2.96) p=.678
	No	3,734	99.8	1,481	99.7	Reference
Abdominal collection/abscess	Yes	63	1.7	26	1.8	1.53 (0.81-2.91) p=.190
	No	3,679	98.3	1,460	98.2	Reference
SSIs	Yes	188	5.0	101	6.8	1.37 (0.93-2.03) p=.116
	No	3,554	95.0	1,385	93.2	Reference
Reoperation	Yes	172	4.6	92	6.2	1.26 (0.86-1.85) p=.230
	No	3,570	95.4	1,394	93.8	Reference
Anastomotic leakage	Yes	125	3.3	83	5.6	1.82 (1.23-2.71) p=.003
	No	3,617	96.7	1,403	94.4	Reference
Overall morbidity	Yes	997	26.6	430	28.9	1.38 (1.10-1.72) p=.005
	No	2,745	73.4	1,056	71.1	Reference
Major morbidity	Yes	198	5.3	100	6.7	1.04 (0.72-1.52) p=.825
	No	3,544	94.7	1,386	93.3	Reference
Mortality	Yes	32	0.9	15	1.0	1.38 (0.61-3.11) p=.439
	No	3,710	99.1	1,471	99.0	Reference

NBP: no bowel preparation; MBP: mechanical bowel preparation alone; OR: odds ratio; 95%CI: 95% confidence interval; sdiSSIs: superficial and/or deep incisional surgical site infections; SSIs: Surgical Site Infections (sdiSSIs plus deep wound dehiscence plus abdominal collection/abscess).

Table S3: Binary comparison between NBP and MoABP groups.

Outcomes	NBP			vs	MoABP		Generalized Boosted Regression model OR (95%CI)
	Pattern	No.	%		No.	%	
sdiSSIs	Yes	125	3.3		10	1.7	0.29 (0.14-0.60) p=.001
	No	3,617	96.7		597	98.3	Reference
Deep wound dehiscence	Yes	8	0.2		1	0.2	0.50 (0.06-4.13) p=.521
	No	3,734	99.8		606	99.8	Reference
Abdominal collection/abscess	Yes	63	1.7		6	1.0	0.54 (0.15-1.88) p=.332
	No	3,679	98.3		601	99.0	Reference
SSIs	Yes	188	5.0		17	2.8	0.42 (0.22-0.80) p=.008
	No	3,554	95.0		590	97.2	Reference
Reoperation	Yes	172	4.6		27	4.5	0.76 (0.47-1.22) p=.250
	No	3,570	95.4		580	95.5	Reference
Anastomotic leakage	Yes	125	3.3		21	3.5	0.75 (0.44-1.30) p=.308
	No	3,617	96.7		586	96.5	Reference
Overall morbidity	Yes	997	26.6		135	22.2	0.72 (0.53-0.98) p=.039
	No	2,745	73.4		472	77.8	Reference
Major morbidity	Yes	198	5.3		30	4.9	0.71 (0.46-1.12) p=.140
	No	3,544	94.7		577	95.1	Reference
Mortality	Yes	32	0.9		2	0.3	0.62 (0.11-3.38) p=.578
	No	3,710	99.1		605	99.7	Reference

NBP: no bowel preparation; MoABP: mechanical bowel preparation and oral antibiotics; OR: odds ratio; 95%CI: 95% confidence interval; sdiSSIs: superficial and/or deep incisional surgical site infections; SSIs: Surgical Site Infections (sdiSSIs plus deep wound dehiscence plus abdominal collection/abscess).

Table S4: Adverse events contributing to overall morbidity (OM, any adverse event) and major morbidity (MM, any adverse event grade > II) after elective colorectal surgery in 6,241 patients.

Adverse event	NBP (No.= 3,742)		oA (No.= 406)		MBP (No.= 1,486)		MoABP (No.= 607)	
	OM (%)	MM (%)	OM (%)	MM (%)	OM (%)	MM (%)	OM (%)	MM (%)
Anastomotic leakage	3.3	2.7	3.9	3.7	5.6	4.7	3.5	3.0
sdiSSIs	3.3	0.2	2.5	0.7	4.9	0.5	1.7	0.0
Deep wound dehiscence	0.2	0.1	0.7	0.5	0.3	0.0	0.2	0.2
Abdominal collection/abscess	1.7	1.0	0.7	0.2	1.8	1.0	1.0	0.2
Small bowel obstruction	1.3	0.9	1.5	1.0	0.9	0.6	2.3	1.5
Anastomotic bleeding	2.0	0.5	2.5	0.2	1.3	0.4	1.6	0.7
Abdominal bleeding	1.1	0.7	0.2	0.2	1.1	0.7	1.2	0.3
Small bowel perforation	0.3	0.3	0.0	0.0	0.1	0.1	0.3	0.3
Trocar/wound site bleeding	0.4	0.1	0.2	0.0	0.3	0.0	0.5	0.0
Anemia	5.1	0.1	3.4	0.2	4.8	0.1	3.8	0.0
Paralytic ileus	4.4	0.1	3.7	0.0	4.0	0.0	2.8	0.0
Fever	3.4	0.1	3.2	0.0	4.3	0.1	2.5	0.0
DVT/pulmonary embolism	0.3	0.1	0.2	0.0	0.3	0.1	0.3	0.2
Neurologic	0.6	0.0	0.2	0.0	0.4	0.0	0.3	0.2
Pneumonia and pulmonary failure	1.5	0.4	3.9	0.5	2.0	0.7	1.5	0.2
Urinary retention	1.3	0.0	0.5	0.0	1.3	0.0	0.7	0.0
Urinary tract infection	0.2	0.0	0.5	0.2	0.5	0.0	0.3	0.0
Acute renal failure	0.7	0.1	1.0	0.0	0.7	0.1	0.7	0.2
Acute mesenteric ischemia	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0
Acute peptic ulcer/erosive gastritis	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0
Cardiac dysfunction and failure	1.4	0.3	1.0	0.5	1.5	0.3	0.8	0.3
Other	5.3	0.8	4.2	0.5	4.4	0.8	4.6	0.3

NBP: no bowel preparation; oA: oral antibiotics; MBP: mechanical bowel preparation; MoABP: mechanical bowel preparation and oral antibiotics; OM: overall morbidity; MM: major morbidity; sdiSSIs: Superficial and/or deep incisional surgical site infections; DVT: deep venous thrombosis..

STROBE Statement—Checklist of items that should be included in reports of *cohort studies*

	Item No	Recommendation	Page No
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract (b) Provide in the abstract an informative and balanced summary of what was done and what was found	1
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	4
Methods			
Study design	4	Present key elements of study design early in the paper	4
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	4
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up (b) For matched studies, give matching criteria and number of exposed and unexposed	4-5
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	5
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	4-5
Bias	9	Describe any efforts to address potential sources of bias	5
Study size	10	Explain how the study size was arrived at	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	5
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding (b) Describe any methods used to examine subgroups and interactions (c) Explain how missing data were addressed (d) If applicable, explain how loss to follow-up was addressed (e) Describe any sensitivity analyses	6-7
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (b) Give reasons for non-participation at each stage (c) Consider use of a flow diagram	7
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders (b) Indicate number of participants with missing data for each variable of interest (c) Summarise follow-up time (eg, average and total amount)	7
Outcome data	15*	Report numbers of outcome events or summary measures over time	7

Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included (b) Report category boundaries when continuous variables were categorized (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	7-8
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	n.a.
Discussion			
Key results	18	Summarise key results with reference to study objectives	8
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	8-9
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	8-9
Generalisability	21	Discuss the generalisability (external validity) of the study results	8-9
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	2