DEVELOPMENT AND VALIDATION OF AN ENDOSCOPIC CLASSIFICATION OF DIVERTICULAR DISEASE OF THE COLON: THE DICA CLASSIFICATION

SVILUPPO E VALIDAZIONE DI UNA CLASSIFICAZIONE ENDOSCOPICA DELLA MALATTIA DIVERTICOLARE DEL COLON: LA CLASSIFICAZIONE DICA

Antonio TURSI1, Giovanni BRANDIMARTE2, Francesco DI MARIO3; Arnaldo ANDREOLI4, Maria Laura ANNUNZIATA5, Marco ASTEGIANO6, Maria Antonietta BIANCO7, Luigi BURL8, Giovanni CAMMAROTA9, Erminio CAPEZZUTO10, Fausto CHILOVI11, Massimo CIANCI12, Rita CONIGLIARO13, Giuseppe DELFAVERO14, Luigi DICESARE15, Michela DI FONZO16, Walter ELISEI17, Roberto FAGGIANI18, Ferruccio FARRONI19, Giacomo FORTI19, Bastianelio GERMANA20, Gian Marco GIORGETTI21, Maurizio GIOVANNONE22, Piera Giuseppina LECCA2, Silvano LOPERFIDO2, Riccardo MARMO23, Piero MORUCCI24, Giuseppe OCCHIGROSSI2, Antonio PENNA25, Alfredo Francesco ROSSI26, Antonio SPADACCINI27, Costantino ZAMPALETTA28, Maurizio ZILLI29, Angelo ZULLO30, Marcello PICCHIO31.

1 Gastroenterology Service, ASL BAT, Andria (BT) - Italy
2 Division of Gastroenterology, “Cristo Re” Hospital, Rome – Italy
3 Division of Gastroenterology, “Cà Foncello” Hospital, Treviso – Italy
4 Division of Gastroenterology, “San Camillo” Hospital, Rome - Italy
5 Division of Gastroenterology, Campus Biomedico University Hospital, Rome - Italy
6 Division of Gastroenterology, “San Giovanni Battista” Hospital, Turin - Italy
7 Division of Gastroenterology, “T. Maresca” Hospital, Torre del Greco (NA) - Italy
8 Division of Gastroenterology and Digestive Endoscopy, “Cattinara” Hospital, Trieste - Italy
9 Department of Internal Medicine, Digestive Endoscopy Service, “A. Gemelli” Hospital, Catholic University, Rome - Italy
10 Division of Digestive Surgical Endoscopy, “G.B. Grassi” Hospital, Ostia (Roma) - Italy
11 Division of Gastroenterology, Physiopathology and Digestive Endoscopy, Bolzano Hospital, Bolzano - Italy
12 Digestive Endoscopy Service, “Pierangeli” Home Care, Pescara - Italy
13 Division of Digestive Endoscopy, “Sant’Agostino Estense” Hospital, Baggiovara (MO) - Italy
14 Division of Gastroenterology, ULSS 18, Rovigo - Italy
15 Division of Gastroenterology, ASL RMH, Albano Laziale (Roma) - Italy
16 Division of Gastroenterology, “Belcolle” Hospital, Viterbo - Italy
17 Division of Gastroenterology, ASL3 Umbria, Foligno (PG) – Italy
18 Division of Digestive Endoscopy, “S. Maria Goretti” Hospital, Latina – Italy
19 Division of Gastroenterology, “San Martino” Hospital, Belluno - Italy
20 Digestive Endoscopy & Nutrition Unit, “S. Eugenio” Hospital, Rome - Italy
21 Division of Gastroenterology, “S. Camillo de Lellis”, Rieti - Italy
22 Division of Gastroenterology, “Curto” Hospital, Polla (SA) - Italy
23 Division of Gastroenterology and Digestive Endoscopy, “S. Pertini” Hospital, Rome - Italy
24 Division of Gastroenterology, “M. Sarcone” Hospital, Terlizzi (BA) - Italy
25 Division of Gastroenterology and Interventional Endoscopy, “Niguarda-Cà Granda” Hospital, Milan - Italy
26 Division of Gastroenterology and Digestive Endoscopy, “Padre Pio” Hospital, Vasto (CH) - Italy
27 Division of Gastroenterology, “Santa Maria della Misericordia” Hospital, Udine - Italy
28 Division of Gastroenterology and Digestive Endoscopy, “Nuovo Regina Margherita” Hospital,
Background: A validated endoscopic score on Diverticular disease (DD) of the colon is lacking at present. We developed a simple endoscopic score of DD, the Diverticular Inflammation and Complication Assessment (DICA) score.

Methods: The DICA score for DD resulted in the sum of the scores for extension of diverticulosis (left and right colon), number of diverticula per district (up to 15 and >15 diverticula), presence and type of inflammation (edema, hyperemia, erosions), and presence and type of complications (rigidity, pus, stenosis, bleeding): DICA 1 (up to 3 points); DICA 2 (score from 4 to 7 points); DICA 3 (over 7 points).

Seventy consecutive patients, who underwent colonoscopy due to abdominal symptoms and in whom a first diagnosis of DD was made, were enrolled. Videos were visualized during plenary session and classified by endoscopists that did not know the DICA classification. Validation was carried out by estimating the correlation between DICA score and Erythro-Sedimentation Rate (ESR) and C-Reactive Protein (CRP) expression. Correlation between DICA score and the symptoms experienced by patients at the time of colonoscopy was assessed too. Finally, 50 videos of DD patients not involved in the development of DICA were reassessed in order to investigate the predictive role of DICA on the outcome of the disease.

Results: A total of 960 ratings were performed. Overall agreement in using DICA was 0.847 (95% CI 0.812 to 0.893). It was 0.878 (95% CI 0.832 to 0.895) for DICA 1, 0.765 (95% CI 0.735 to 0.786) for DICA 2, and 0.891 (95% CI 0.845 to 0.7923) for DICA 3. Intra-observer agreement kappa was 0.91 (95% CI 0.886 to 0.947).

A significant correlation was found between DICA score and both ESR (p=0.0001) and CRP values (p=0.0001), as well as between median pain score and DICA score (p=0.0001).

With respect to the 50 patients reassessed, recurrence or occurrence of disease complications were recorded in 29 (58%) patients: 10 (34.5%) were classified as DICA 1 and 19 (65.5%) as DICA 2 (p=0.036).

Conclusions: Diverticular Inflammation and Complication Assessment (DICA) score is a simple, reproducible, validated, and easy-to-use endoscopic scoring system for diverticular disease of the colon.