

Skor Prediksi Irritable Bowel Syndrome pada Remaja dengan Nyeri Perut Berulang: Kajian Etiopatogenesis, Infestasi *Blastocystis hominis*, Inflamasi usus, dan Dampaknya terhadap Kualitas Hidup = Score Prediction of Irritable Bowel Syndrome among Recurrent Abdominal Pain of Adolescences: Role of Etiopathogenesis *Blastocystis hominis* Infestation, Intestinal Inflammation, and Its Impact on Quality of Life

Yudianita Kesuma, author

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Abstrak

Irritable Bowel Syndrome (IBS) merupakan penyakit terbanyak pada anak dan remaja pada gangguan saluran cerna fungsional dengan sub tipe diare, konstipasi, campuran dan *unclassified*. Mekanisme patofisiologi belum jelas dan memerlukan pembuktian adanya keterlibatan organik. Tujuan penelitian ini adalah untuk mengetahui epidemiologi IBS, peran infestasi *Blastocystis hominis* dan integritas mukosa usus dalam etiopatogenesis IBS, dampak IBS terhadap kualitas hidup, serta membuat sistem model prediksi IBS pada remaja. Penelitian ini berbasis komunitas dengan pendekatan potong lintang komparatif dua kelompok pada remaja dari enam SMA di Palembang. Kriteria Roma III digunakan untuk menegakkan diagnosis IBS beserta kuesioner untuk menentukan faktor risiko. Secara *multistage random sampling* dibandingkan 70 subjek IBS dan 70 subjek nonIBS. Dilakukan pencatatan riwayat medis, pemeriksaan fisis, pemeriksaan parasit dan biomarker tinja serta kuesioner IBSQOL. Pemeriksaan tinja segar dengan mikroskop untuk mengetahui infestasi *Blastocystis hominis*. Pemeriksaan kadar alfa-1 antitripsin dan kalprotektin tinja dengan ELISA untuk melihat adanya gangguan integritas mukosa usus. Dampak IBS terhadap kualitas hidup dinilai dengan kuesioner IBSQOL. Terdapat 454 subjek dengan prevalens IBS 30,2%, terdiri dari sub tipe terbanyak yaitu sub tipe diare 36,5%, dan yang paling sedikit sub tipe konstipasi 18,9%. Uji regresi logistik mendapatkan faktor risiko utama IBS adalah di *bully*, perempuan, usia 14–16 tahun, riwayat konstipasi, makan tiga jenis kacang, minuman kemasan, dan riwayat diare (kisaran OR 2,86–1,81). *Blastocystis hominis* ditemukan pada masing-masing grup sebesar 51,4 vs. 28,6%, dengan perbedaan bermakna ($p = 0,006$). Tidak ada hubungan bermakna untuk kerusakan mukosa ($p = 0,734$), tetapi bermakna dengan inflamasi usus ($p = 0,039$). Terbukti IBS secara bermakna menyebabkan rendahnya kualitas hidup ($p = 0,001$). Didapatkan 2 model prediksi skoring, yaitu model 1 yang dapat diaplikasikan pada layanan kesehatan primer yang bertujuan sebagai uji tapis dengan menilai faktor risiko. Model 2 diperuntukkan sebagai layanan terapi terkait infestasi *Blastocystis* pada layanan kesehatan tersier. Simpulan, prevalens IBS pada remaja di Palembang tinggi dan memiliki faktor risiko utama di *bully*, perempuan, usia 14–16 tahun, riwayat konstipasi, makan 3 jenis kacang, minuman kemasan, riwayat diare. Terdapat hubungan yang bermakna antara *Blastocystis hominis* dan inflamasi usus dengan kejadian IBS pada remaja, serta dampaknya terhadap kualitas hidup membutuhkan penanganan yang komprehensif.

Kata kunci:
Blastocystis hominis, integritas mukosa usus, *irritable bowel syndrome*, kualitas hidup, remaja

Irritable Bowel Syndrome (IBS) is a functional gastrointestinal disorder and commonly present in children and adolescences, presented as diarrhoea, constipation, mixed or unclassified

type. The pathophysiological mechanisms of IBS are unclear, and still challenging to determine organic disorders. The aim of this study was to investigate the epidemiology of IBS, the role of *Blastocystis hominis* infestation and intestinal mucosal integrity in the etiopathogenesis of IBS, the impact of quality of lives, and apply a scoring system to predict the occurrence of IBS among adolescences.

A community-based survey with comparative cross sectional approach was done from six high schools in Palembang. Subjects were recruited using the multistage random sampling divided into two groups (70 subjects IBS and 70 subjects nonIBS). The Rome III criteria were used to establish a diagnosis of IBS along with a questionnaire to determine risk factors, analyzed for association with *Blastocystis hominis* infestation, intestinal mucosal integrity, and its impact on quality of life. Direct microscopic stool examination to identify single *Blastocystis* infection was performed, followed by culture in Jones's medium, PCR and Sequencing of 18S rRNA to determine *Blastocystis* subtype. Examination of antitrypsin alpha-1 and fecal calprotectin levels by ELISA was done to determine impaired intestinal mucosal integrity. Impact of IBS on quality of life was done with the IBSQOL questionnaire.

Of the 454 subjects, the prevalence of IBS was 30.2%, consisting of diarrhea subtypes 36.5%, 21.9% mixed, 22.6% Unclassified and 18.9% constipation. The major risk factors for IBS were bullying, girls, ages 14–16 years, history of constipation, eat three kinds of nuts, drink beverages, and history of diarrhea (range OR 2.86–1.81). *Blastocystis hominis* was detected in each group of 51.4 vs. 28.6% ($p = 0.006$). There was no significant association for intestinal mucosal permeability ($p = 0.734$), but it was significant with intestinal inflammation ($p = 0.039$). Significant impairment of quality of life among IBS adolescences was found ($p = 0.001$). The IBS prediction score model had 2 models. Model 1 is more applicable in primary health care for screening IBS based on risk factors. Model 2 only usable for tertiary health care, as management of *Blastocystis* infestation.

Conclusion, the prevalence IBS among adolescence was high with major risk factors to IBS consisted of bullying, female gender, age between 14–16 years, previous illness of constipation, diet three nuts, drink beverages, previous illness diarrhoea. Significant association with *Blastocystis hominis* infestation, intestinal inflammation were found, comprehensive management is needed as for its impact on quality of life.

Keywords: *Blastocystis hominis*, intestinal integrity, irritable bowel syndrome, quality of life, Adolescences