

# INPLASY

## The Efficiency of Serum Biomarkers in Predicting the Clinical Outcome of Patients with Mesenteric Ischemia During Follow-Up: A Systematic Review

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**Corresponding author:**

Stefan Lucian Popa

popa.stefan@umfcluj.ro

**Author Affiliation:**

"Iuliu Hatieganu" University of Medicine and Pharmacy, Cluj-Napoca, Romania.

Mihaileanu, FV<sup>1</sup>; Popa, SL<sup>2</sup>; Grad, S<sup>3</sup>; Dumitrascu, DI<sup>4</sup>; Ismaiel, A<sup>5</sup>; Rus, E<sup>6</sup>; Brata, VD<sup>7</sup>; Padureanu, AM<sup>8</sup>; Dita, MO<sup>9</sup>; Turtoi, D-C<sup>10</sup>; Duse, TA<sup>11</sup>; Badulescu, A-V<sup>12</sup>; Bottalico, P<sup>13</sup>; Chiarioni, G<sup>14</sup>; Pop, C<sup>15</sup>; Mogosan, C<sup>16</sup>; Barsan, M<sup>17</sup>; Gherman, CD<sup>18</sup>; Stancu, B<sup>19</sup>; David, L<sup>20</sup>.

**ADMINISTRATIVE INFORMATION****Support** - This study received no external funding.**Review Stage at time of this submission** - Completed but not published.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202420085**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 February 2024 and was last updated on 20 February 2024.**INTRODUCTION**

**Review question / Objective** This systematic review comprehensively explores the role of blood biomarkers in predicting clinical outcomes during follow-up for patients with mesenteric ischemia.

**Condition being studied** The initial clinical manifestation of acute mesenteric ischemia poses a diagnostic challenge, often leading to delays in identification and subsequent surgical intervention, contributing to adverse outcomes. Serum biomarkers, offering insights into the underlying pathophysiology, hold promise as prognostic indicators for acute mesenteric ischemia.

**METHODS**

**Search strategy** The electronic databases PubMed, EMBASE, and Cochrane Library were searched without any restrictions from their

inception until December 4th, 2023, to identify potential observational studies. The following search string was entered for PubMed (“Mesenteric Ischemia”[Mesh]) OR (“Mesenteric Infarction”[All Fields]) AND (“Biomarkers”[Mesh]) OR (“D-dimer”[All Fields]) OR (“Endothelin-1”[All Fields]) OR (“I-FABP”[All Fields]) OR (“alpha-GST”[Mesh]) OR (“IL-6”[All Fields]) OR (“L-Lactate”[All Fields]) OR (“D-Lactate”[All Fields]) OR (“Procalcitonin”[All Fields]) OR (“Citruiline”[All Fields]) OR (“Ischemia Modified Albumin”[All Fields]) OR (“Omentin”[All Fields]) OR (“Prognosis”[All Fields]) OR (“Follow-Up”[All Fields]) OR (“Prediction”[All Fields]) OR (“Biomarkers”[All Fields]) OR (“Outcome”[All Fields]), and similar search terms were used for EMBASE and Cochrane Library.

**Participant or population** Patients with mesenteric ischemia.

**Intervention** Not applicable.

**Comparator** Not applicable.

**Study designs to be included** Observational and interventional studies.

**Eligibility criteria** Observational as well as interventional studies analyzing the impact of serum biomarkers in predicting the outcome of patients with mesenteric ischemia were included in the study. Studies were included if (1) a potentially relevant biomarker was measured and assessed in patients with suspicion of mesenteric ischemia, (2) the diagnosis of mesenteric ischemia was confirmed in patients included in the studies, and if (3) the study had proper statistical methods of assessing the dynamic of the investigated biomarkers. Studies published in other languages than English, case reports, letters to the editor, reviews, practice guidelines, conference abstracts/papers, abstracts published without full-text or unavailable paper, and studies on pediatric populations were excluded from the study.

**Information sources** PubMed, EMBASE, and Cochrane Library.

**Main outcome(s)** The outcomes were represented by the accuracy, sensitivity, and specificity of the investigated biomarkers.

**Quality assessment / Risk of bias analysis** The Newcastle-Ottawa Scale (NOS) was employed to assess the risk of bias for observational studies. The quality assessment was independently conducted by two reviewers, and any discrepancies were resolved through consensus.

**Strategy of data synthesis** Due to the anticipated heterogeneity among the included studies, a meta-analysis was not deemed appropriate. Therefore, a narrative synthesis approach was used to summarize the findings, and relevant data were presented in tabular format. We conducted a qualitative synthesis of all included studies.

**Subgroup analysis** Subgroup analysis was conducted in accordance with the available data from the extracted data from the included studies, such as type of gastritis, additional diagnoses, symptomatology, and sex.

**Sensitivity analysis** No sensitivity analysis was conducted.

**Language restriction** Only studies published in English have been included in our systematic review.

**Country(ies) involved** Romania, Italy.

**Keywords** mesenteric ischemia; biomarkers; clinical outcomes, follow-up.

#### **Contributions of each author**

Author 1 - Florin Vasile Mihaileanu - Conceptualization, supervision.

Author 2 - Stefan Lucian Popa - Conceptualization.

Author 3 - Simona Grad - Methodology.

Author 4 - Dinu Luliu Dumitrascu.

Author 5 - Abdulrahman Ismaiel - Validation.

Author 6 - Eliza Rus - Validation.

Author 7 - Vlad Dumitru Brata - Writing- original draft preparation.

Author 8 - Alexandru Marius Padureanu - Writing- original draft preparation.

Author 9 - Miruna Oana Dita - Writing- original draft preparation.

Author 10 - Daria-Claudia Turtoi - Writing- original draft preparation.

Author 11 - Traian Adrian Duse - Writing- original draft preparation.

Author 12 - Andrei-Vlad Badulescu - Writing- review and editing.

Author 13 - Paolo Bottalico - Writing- review and editing.

Author 14 - Giuseppe Chiarioni - Writing- review and editing.

Author 15 - Cristina Pop - Writing- review and editing.

Author 16 - Cristina Mogosan - Writing- review and editing.

Author 17 - Maria Barsan - Writing- original draft preparation.

Author 18 - Claudia Diana Gherman - Writing- original draft preparation.

Author 19 - Bogdan Stancu - Writing- original draft preparation.

Author 20 - Liliana David - Supervision.