

2023 대한심장혈관흉부외과학회

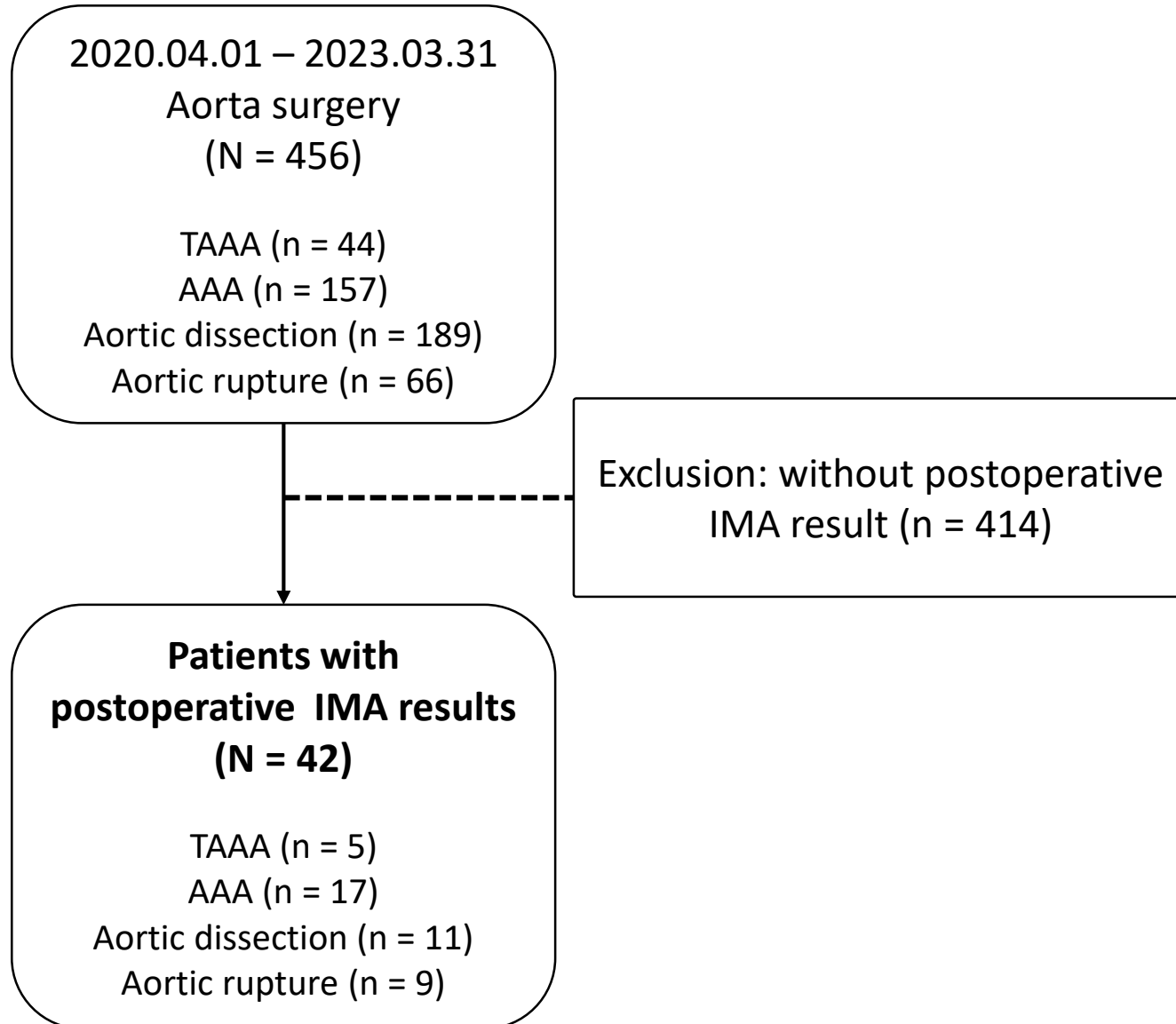
제55차 추계학술대회 & APELSO 2023

2023. 11. 02 (Thu) - 11. 04 (Sat), 그랜드 인터컨티넨탈 파르나스 서울

The Efficacy of Ischemia-Modified Albumin as a Serological Marker for Postoperative Bowel Ischemia in Aortic Surgery



- Albumin properties change during ischemic attacks, generating **ischemia-modified albumin (IMA)** with reduced metal-binding capacity. The Albumin Cobalt Binding (ACB) test is used to assess IMA levels. In healthy individuals, IMA level can range from 52 to 116kU/L, with 95th percentile at 85kU/L. Our center suggests 0 to 85kU/L as its normal range.
- IMA levels rise within 6 - 10 minutes after ischemia, remain elevated for up to 6 - 12 hours, and return to normal within 12 - 24 hours. It is considered a **sensitive serological marker for various ischemic conditions**.
- However, the significance of IMA as a serological marker for **postoperative bowel ischemia following aortic surgery** has not been reported.
- This study aims to **evaluate the efficacy of IMA as a serological marker for postoperative bowel ischemia**.



- Diagnosis of bowel ischemia
 - Computed Tomography scan
 - Intraoperative findings
- Data selection
 - **IMA** : highest IMA level between operation and diagnosis of bowel ischemia
 - **Myoglobin, Lactate** : at the same time with IMA results

Table 1. Baseline patient characteristics

	N = 42
Age (year)	70.6 ± 11.2
BMI (kg/m ²)	24.1 ± 4.4
LVEF (%)	59.9 ± 7.5
Preop Cr (mg/dL)	1.19 ± 0.6
Preop GFR (mL/min/1.73m ²)	68.4 ± 23.2
Euroscore II (%)	3.8 ± 4.0

Diagnosis, n (%)

Thoracoabdominal aorta aneurysm	5 (11.9%)
Abdominal aorta aneurysm	17 (40.5%)
Acute aortic dissection	11 (26.2%)
Aortic rupture	9 (21.4%)

Emergency

Elective surgery	21 (50.0%)
Urgent surgery	1 (2.4%)
Emergent surgery	20 (47.6%)

Redo OHS

7 (16.7%)

Table 2. Early outcomes

	N=42
Bowel ischemia	5 (11.9%)
In-hospital mortality	2 (4.8%)

Table 3. Details of bowel ischemia event

	Diagnosis	Bowel ischemia diagnosis at	Management
Patient 1	Acute aortic dissection	POD 8	Conservative treatment
Patient 2	TAAA	POD 6	Bowel resection
Patient 3	Aortic rupture	POD 4	Conservative treatment
Patient 4	Aortic rupture	POD 4	Bowel resection
Patient 5	Aortic rupture	POD 8	Bowel resection

Among 42 patients, **5 had a bowel ischemia event.**

Figure 1. ROC curve for bowel ischemia

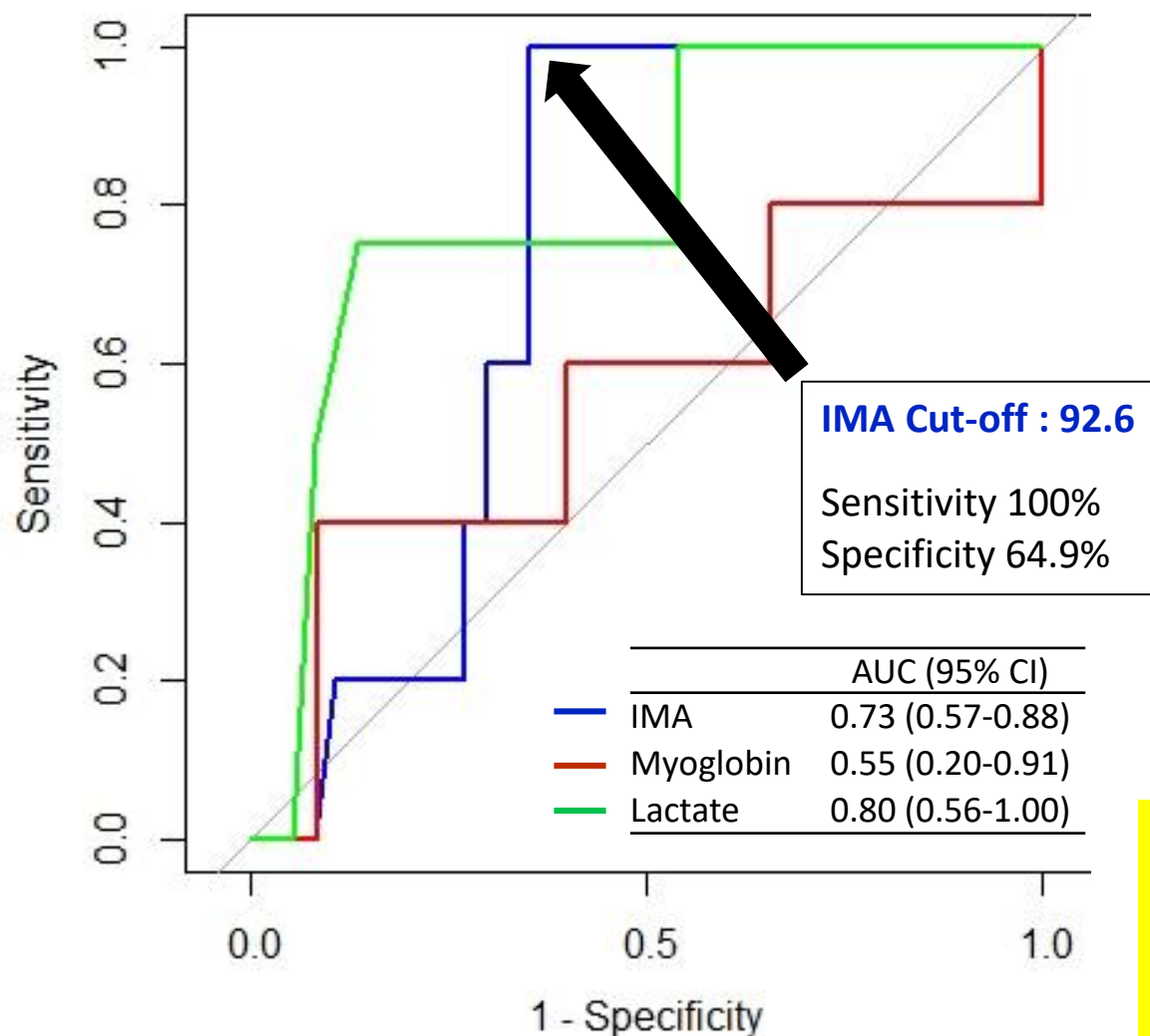
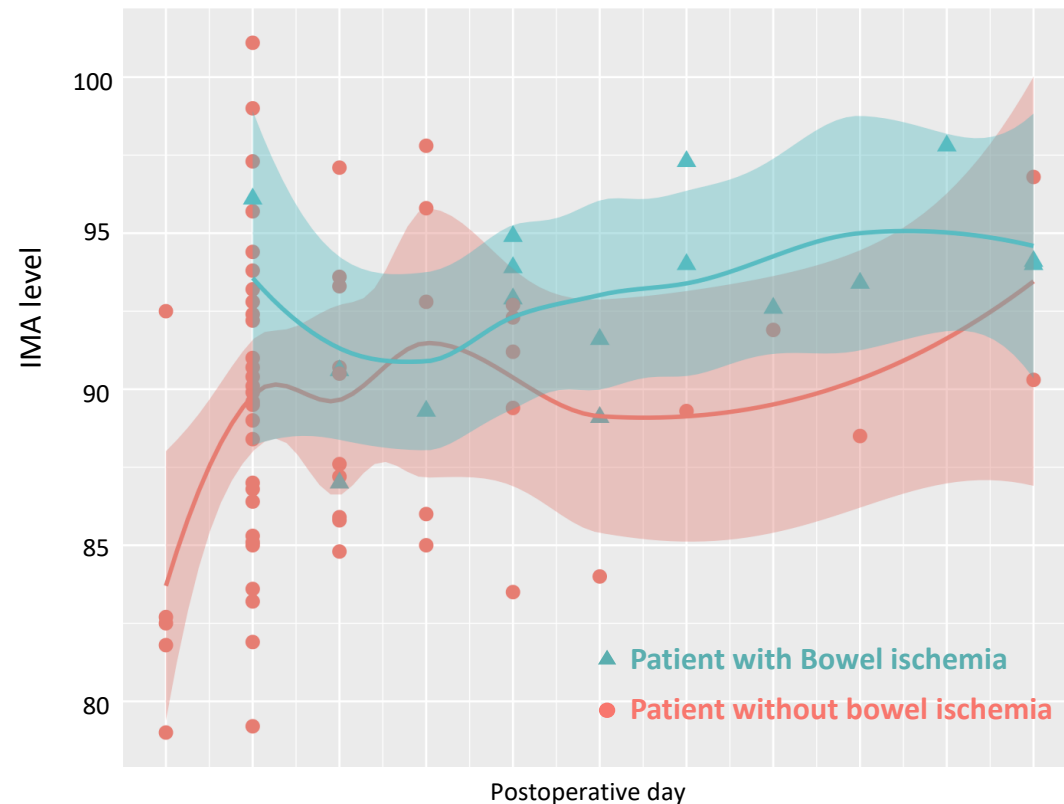


Figure 2. IMA level during postoperative course



IMA and lactate exhibited significant results in the ROC curve, with an **ideal cut-off value of IMA at 92.6**.

The IMA level tends to be higher in patients with bowel ischemia, and this trend became distinct after postoperative day 4.

- **Ischemia-Modified Albumin can serve as a valuable serological marker** for postoperative bowel ischemia in patients who undergone aortic surgery.
- Given the limited number of study subjects, further research is needed to investigate the serial changes in IMA during the postoperative period and its correlation with bowel ischemic events.