Title: UNSTABLE ANGINA - ARE PREOPERATIVE ISCHEMIC PHENOMENA PREDICTIVE FOR THE INTRAOPERATIVE COURSE?

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Introduction. Patients with unstable angina pectoris (UAP) exhibit a number of ischemic manifestations, including frequent and severe asymptomatic events. In the last year 3 anesthesiologic studies documented the high incidence of myocardial ischemia in the immediate preoperative phase (1,2,3). The question arises whether the severity of preoperative silent and symptomatic ischemic events correlates with the intraoperative course. Therefore this study was performed to document and compare pre- and intraoperative ischemic manifestations.

Methods. After informed consent 20 patients with UAP (mean age 60,8 yrs) scheduled for elective coronary artery bypass graft operation were studied. An ambulatory ECG-equipment (Diagnostic Medical Instruments, Syracuse, N.Y.) with a 2-channel recorder was applied over a period of exactly 24 hours preoperatively. Transient ischemic events were defined as pathologic-T, as ST-depression or ST-elevation of 0,1 mV or more lasting 2 minutes or more. Intraoperatively the period from induction of anesthesia until initiation of cardiopulmonary bypass was investigated. Monitoring included conventional ECG, leads I,II,III, aVR, aVL, aVF and V_5, HR, AP, CVP, PCWP and CO. Based on a scoring system the severity of preoperative (ST↓ + ST↑ + pathologic-T + arrhythmias + symptomatic attacks) and intraoperative ischemic events (ST↓ + ST↑ + pathologic-T + LVEDP ↑ + arrhythmias) was classified as: 0=none, 1=mild, 2=moderate, 3=severe.

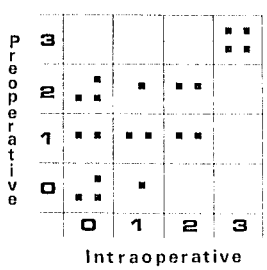
Results. The different ischemic manifestations are listed in table 1. 6 of 9 patients with ≥ 8 preoperative ischemic ST↓ events also exhibited intraoperative signs of ischemia. 2 of 12 patients with intraoperative myocardial ischemia did not show any ischemic phenomenon in the 24 h- preoperative phase. 1 patient with preoperative ST↑ also showed intraoperative signs of severe ischemia, 1 patient with LOWN IVb-arrhythmia also had severe arrhythmias during induction of anesthesia. Fig.1 shows the relationship between the scores of all pre- and intraoperative ischemic events. In fig.2 the total number of preoperative ST↓ (n/24 h, ▲) as well as the duration of preoperative ST↓ (min/24 h, ●) are scored versus all intraoperative ischemic events.

	Path. T	ST↓	ST↑	LOWN IV	Sympt. attack	LVEDP ↑
Preop.	1	12	1	1	12	-
Intraop.	3	5	3	1	-	5

Table 1 Number of patients with different ischemic phenomena

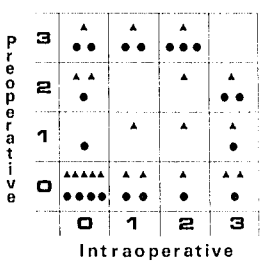
Discussion. Previous cardiologic Holter studies have shown that only 20 % of transient ischemic events in patients with UAP are symptomatic and that ST-depression is by far (50%) the most frequent ischemic phenomenon, followed by ST-elevation (31%) and pathologic-T (12%) (4). The data of this study suggest that there is no correlation between the number or duration of preoperative ST-depression and the intraoperative course (fig. 2). The probability of predicting intraoperative ischemic events based on preoperative manifestations, however, is markedly increased, if more variables of preoperative ischemia (fig.1), such as ST↓ + ST↑ + pathologic-T + arrhythmias + symptomatic attacks are included.

Fig. 1



Chi-Square: $p < 0,01$

Fig. 2



Chi-Square: n.s.

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