

pressure, detailed descriptions of the ECG and CXR, changes in preoperative management, complications after surgery, and mortality.

### Study goals

The primary goal of this analysis was to determine whether an ECG or CXR, acquired prior to non-elective NCS in hospitalized patients, had any impact on changes in preoperative management. We defined a change in a preoperative management as a postponed or completely canceled surgery (PCCS). We also recorded any relevant changes in preoperative medications, such as adjustments in beta-blocker doses or anti-arrhythmic therapy. Sometimes, additional tests were initiated, based on an abnormal ECG or CXR, which turned out to be unnecessary and did not provide any additional information. Therefore, those tests did not actually change the preoperative management. In those cases, we did not record a change in preoperative management; on the contrary, we recorded these as pointless time delays.

The secondary goal was to identify potential predictors of a change in preoperative management, due to ECG or CXR findings. We aimed to suggest some cut-off values of the identified predictors, which could be used to reduce the number of unnecessary procedures.

### Study oversight

The study was conducted in accordance with Good Clinical Practice guidelines, and it was approved by the local Ethics Committee. Given the retrospective study design, patients did not provide informed consent before study entry.

All the authors involved had access to all patient data and the results of statistical analyses. All the authors agreed to vouch for the accuracy and completeness of the analyzed data.

### Statistical analysis

Standard descriptive statistics were applied in the analysis. Continuous variables are expressed as the mean  $\pm$ SD or the median and interquartile range. Categorical variables are expressed as absolute and relative frequencies. Differences between patients with and without PCCS were analyzed with the Mann-Whitney test, for continuous variables, and Fisher's exact test, for categorical variables.

Parameters were selected for their abilities to predict PCCS; this was evaluated with a receiver operating characteristic (ROC) analysis and described with the area under the curve (AUC), its confidence interval (CI), and statistical significance ( $p$ -value  $<0.05$ ). The optimal cut-off values were determined by maximization of the Youden index. The analysis was performed in SPSS 28.0.1.1 (IBM Corporation, Armonk, NY, USA, 2021).

### Results

We enrolled a total of 2362 patients scheduled for NCS that underwent an internal preoperative examination between September 2015 and November 2021. All patients were included in the primary analysis. Their mean age was 63.4 years, and 48% were women. Among these patients, 56.4% had a history of arterial hypertension, 22.8% had a history of diabetes, and 16.5% had a history of chronic coronary syn-

drome. The mean heart rate was 79 beats per minute (bpm); the median serum C-reactive protein (CRP) level was 8 mg/l. The clinical and other characteristics of the patients are provided in Table 1.

Prior to surgery, only 6 patients did not undergo ECG testing, and 86 patients did not undergo CXR testing. Among these patients, 72% had an abnormal ECG and 33% had an abnormal finding on a CXR. Characteristics of the physiological ECGs and abnormal CXRs used in this study are described in Tables 2 and 3.

A PCCS due to a pathological ECG or CXR finding occurred in 4 (0.17%) and 5 (0.21%) patients, respectively, in the entire group. Supraventricular tachyarrhythmia (SVT) was the only reason for a change in preoperative management due to the ECG findings. Pneumonia was the only reason for a PCCS due to CXR findings.

**Tab. 1.** Patient clinical and other characteristics

Parameter	Category	Value
Age, y		63 ( $\pm$ 15)
Sex	Men	1.227 (51.9)
	Women	1.135 (48.1)
Hypertension	No	1.030 (43.6)
	Yes	1.332 (56.4)
Dyslipidemia	No	1.758 (74.4)
	Yes	604 (25.6)
Atherosclerosis	No	2.091 (88.5)
	Yes	271 (11.5)
Chronic coronary syndrome	No	1.972 (83.5)
	Yes	390 (16.5)
Chronic heart failure	No	2.299 (97.3)
	Yes	63 (2.7)
Chronic kidney disease	No	2.222 (94.1)
	Yes	140 (5.9)
Ischemic or hemorrhagic stroke	No	2.157 (91.3)
	Yes	205 (8.7)
Atrial fibrillation	No	2.169 (91.8)
	Yes	193 (8.2)
Diabetes mellitus	No	1.824 (77.2)
	Yes	538 (22.8)
Pulmonary disease	No	2.053 (86.9)
	COPD	133 (5.6)
	AB	100 (4.2)
	ACOS	14 (0.6)
	Other	62 (2.6)
Oncological disease, malignancy	No	2.026 (85.8)
	Yes	336 (14.2)
BMI, kg/m <sup>2</sup>		28 ( $\pm$ 6)
Smoking	Non-smoker	1.381 (58.5)
	Smoker	702 (29.7)
	Ex-smoker	279 (11.8)
Potassium, mmol/l		4.24 ( $\pm$ 0.48)
CRP, mg/l		8 (3–43)
Systolic blood pressure, mmHg		139 ( $\pm$ 21)
Diastolic blood pressure, mmHg		80 ( $\pm$ 12)
Heart rate, beats/min		79 ( $\pm$ 16)

Values are the mean ( $\pm$  standard deviation), number (%), or median (interquartile range), as indicated. COPD – chronic obstructive pulmonary disease; AB – bronchial asthma; ACOS – asthma-COPD overlap syndrome; CRP – C-reactive protein