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Off-pump Coronary Artery Bypass Grafting In Euroscore High-risk Patients

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Abstract:

BACKGROUND: Off-pump coronary artery bypass grafting (OPCAB) is reasonably safe in low-risk patients, while the prognosis may be worse in high-risk patients. We aimed to analyze the results of OPCAB in EuroSCORE high and low risk patients.

METHODS: This retrospective study includes the results of coronary artery bypass grafting in 1221 patients operated at the RRCEM from 2013 to 2020. The patients were divided into two groups high-risk patients with EuroSCORE more than 5 - (BP) - 654 (53.6%); and low-risk patients - with the EuroSCORE less than 5 - (HP) - 567 (46.4%). The mean EuroSCORE was 7 (6-12) in the high-risk group and 3 (0-5) in the low-risk group. The average age was higher in the high-risk group (72 (42-89) years vs 61 (27-78) years in high-risk and low-risk groups respectively (P = 0.0001)).

RESULTS: The leading complications were atrial fibrillation and hydrothorax, observed in 14.7% and 15.9%; in 18.08% and 24.2% of patients in low and high risk groups, respectively, it should be noted that there was no statistically significant difference. Various complications that worsened the results of treatment were diagnosed in 18 (3.2%) low-risk patients and 98 (14.9%) high-risk patients. Complications such as perioperative myocardial infarction, small cardiac output syndrome and complex cardiac arrhythmias were significantly higher in high-risk patients and in 3 (0.5%) cases of low-risk patients and 38 (5.8%) of high risk patients led to death.

CONCLUSIONS: OPCAB is quite safe for low-risk patients, but in high-risk patients it can be accompanied by a higher number of complications and mortality, but still mortality was lower than EuroSCORE expected death rate.

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METHODS

Options	Low risk (n = 567)	High risk (n = 654)	p
Age *	61 (27–78)	72 (42–89)	0,0001
men	466 (82 , 2 %)	480 (73 , 4 %)	0,0002
women	101 (17 , 8 %)	174 (26 , 6 %)	0,003
EuroSCORE*	3,1 (2-5)	7,5 (6-12)	0,0001
CHF NYHA IV class	85 (15%)	209 (32 , 0 %)	0,0001
Stable grade IV angina	2 (0 , 4 %)	0 (0%)	0,1
Unstable angina	563 (99 , 2 %)	627 (95 , 2 %)	0,001
ACS	2 (0 , 4 %)	7 (1.1 %)	0,1
AMI	0 (0%)	20 (3,1 %)	0.0001
History of MI	191 (33 , 7 %)	347 (53 , 1 %)	0,0001
DM	121 (21 , 3 %)	267 (40 , 8 %)	0,0001
Chronic kidney failure	3 (0 , 6 %)	15 (2.3 %)	0,01
COPD	19 (3.4 %)	62 (9,5 %)	0,0001
BMI over 30	89 (15.7 %)	129 (19,7 %)	0.06

	High-risk patients	Low-risk patients
Various complications	98 (14.9%)	18 (3.2%)
Deaths	38 (5.8%)	3 (0.5%)

RESULTS

Non-fatal complications, n (%)

Complication*	Patient groups		p
	Low risk group n = 194 (34.2%)	High risk group n = 287 (43.9%)	
Atrial fibrillation	83 (14.6%)	125 (19.1%)	0,05
Pericarditis	25 (4.4%)	23 (3.5%)	0,4
Sternal dehiscence	9 (1.6%)	12 (1.8%)	0,7
Superficial wound infection	23 (4.1%)	29 (4.4%)	0,7

Fatal complications, n (%)

Complication*	Patient groups		p
	Low risk group n = 3 (0.5%)	High-risk group n = 38 (5.8%)	
Perioperative MI	0 (0%)	15 (2.3%)	0,0003
Low cardiac output syndrome	2 (0.35%)	21 (3.2%)	0,0003
Complex rhythm disturbances	2 (0.35%)	7 (1.1%)	0,14
Pulmonary embolism	1 (0.18%)	3 (0.5%)	0,4
Acute kidney failure	0 (0%)	0 (0%)	0,7
Stroke	0 (0%)	1 (0.15%)	0,4
Mortality	3(0.5%)	38(5.8%)	0.0001

CONCLUSIONS

OPCAB is quite safe for low-risk patients, but in high-risk patients it can be accompanied by a higher number of complications and mortality, but still mortality was lower than EuroSCORE expected death rate.