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SHORT-TERM CHANGES IN CARDIOVASCULAR HEMODYNAMICS IN RESPONSE TO BARIATRIC SURGERY AND WEIGHT LOSS USING THE NEXFIN® NON-INVASIVE CONTINUOUS MONITORING DEVICE

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Background: Compared to healthy individuals, obese patients have significantly higher systolic and diastolic blood pressure; mean arterial pressure, heart rate and cardiac output. The aim of this study was to evaluate cardiovascular hemodynamic changes before and three months after bariatric surgery.

Methods: Patients scheduled for bariatric surgery between the 29th of September 2016 and the 24th of March 2016 were included and compared with 24 healthy individuals. Hemodynamic measurements were performed preoperatively and three months after surgery, using the Nexfin® non-invasive continuous hemodynamic monitoring device.

Results: 80 subjects were included in this study, respectively 56 obese patients scheduled for bariatric surgery and 24 healthy individuals. Baseline hemodynamic measurements showed significant differences in cardiac output (6.5±1.6 versus 5.7±1.6 l/min, p=0.046), mean arterial pressure (107±19 versus 89±11 mmHg, p=0.001), systolic (134±24 versus 116±18 mmHg, p=0.001) and diastolic blood pressure (89±17 versus 74±10 mmHg, p=0.001) and heart rate (87±12 versus 76±14 bpm, p=0.02) between obese and healthy subjects. Three months after surgery, significant changes occurred in mean arterial pressure (89±17 mmHg, p=0.001), systolic (117±24 mmHg, p=0.001) and diastolic blood pressure (71±15 mmHg, p=0.001), stroke volume (82.2±22.4 ml, p=0.03) and heart rate (79±17 bpm, p=0.02)

Conclusion: Three months after bariatric surgery significant improvements occur in hemodynamic variables except cardiac output and cardiac index, in the patient group.

Note:

BIOGRAPHY

Sjaak Pouwels is a MD, PhD holder and a surgical resident, currently working at the Department of Surgery, Franciscus Gasthuis and Vlietland in Rotterdam, Netherlands. He is interested in the broad spectrum of obesity research; mainly effects of bariatric surgery and physiological changes due to obesity. His recent research focused on cardiovascular hemodynamic changes and remission of type 2 diabetes mellitus after bariatric and metabolic.

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