Impact of left ventricular end-diastolic pressure on the outcomes of patients undergoing percutaneous coronary intervention

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Background

- Left ventricular end-diastolic pressure (LVEDP) is an important hemodynamic marker of left ventricular performance and affects coronary perfusion.
- The impact of LVEDP in patients presenting with non-emergent PCI indications is unknown.

Aims and Methods

- To evaluate the association of LVEDP with patient outcomes after elective or urgent percutaneous coronary intervention (PCI) in the BMC2 Registry.
- Study period: April 1, 2018 to June 30, 2020.
- Patients were divided according to LVEDP tertile.
- The primary endpoint was in-hospital mortality.
- Multivariable logistic regression analysis of LASSO-selected candidates to assess the independent association of LVEDP with the study outcomes.
- A recursive partitioning tree model for mortality was built to guide decision-making in patients with high LVEDP undergoing non-emergent PCI.

Limitations

- Observational study.
- Lack of relevant variables (SYNTAX score, completeness of revascularization, timing of LVEDP measurement).
- Data on change in management such as periprocedural pharmacology informed by filling pressures were not available.
- LVEDP was not available for 35.3% of patients (n=18,821) in the initially identified cohort.



Study outcomes according to LVEDP < vs. ≥27 mmHg



Study outcomes according to LVEDP < vs. ≥27 mmHg



- outcomes.
- pressure.

- high LVEDP (>18 mmHg).
- \bullet variables).

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Results

We included 34,555 patients undergoing non-emergent PCI. Patients in the high LVEDP tertile had a worse clinical and angiographic/procedural profile and experienced a higher incidence of in-hospital adverse outcomes.

• An elevated LVEDP was an independent predictor of adverse

 An LVEDP ≥27 mmHg was identified as a marker of high mortality (2.1%), with rates varying from 1.1% to 38.7%, based upon a clinical profile defined by cardiogenic shock, renal and left ventricular function, hemoglobin, and systolic blood

Discussion

One third of patients undergoing elective or urgent PCI have a

These patients have a higher-risk clinical profile (baseline characteristics, clinical presentation, angiographic/procedural

Patients across increasing LVEDP tertiles suffered progressively higher rates of in-hospital adverse events, including death. LVEDP was an independent predictor of key outcomes. • Patients with an LVEDP ≥27 mmHg undergoing elective PCI had high mortality rates (from 1.1% to 38.7%), according to a clinical profile defined by 5 commonly measured variables.