ACC 22: Results From the POISE-3 Blood Pressure Trial

- So I'm Maura Marcucci. I'm an assistant professor at McMaster University, Hamilton, Canada. And I'm the project officer for the POISE-3 trial.
And today I'm presenting the POISE-3 blood pressure trial. So, comparing the effects of a hypertension avoidance strategy in patients undergoing non-cardiac surgery.

Study objectives

So more than three hundred millions of patients undergo non-cardiac surgery every year. And many of these patients are actually on chronic antihypertensive medications. And commonly these medications are continued perioperatively.
Also hemodynamics abnormalities and in particular hypertensions are frequent around the time of non-cardiac surgery and they have been linked with major vascular complications which are unfortunately, are still very frequent in these patients.
With the current knowledge there's no good understanding of what the best, the optimal, blood pressure management strategy is around the non-cardiac surgery patients.

Study design and patient cohort

So we randomised almost 7,500 patients across 110 centres in 22 countries. And these were patients undergoing inpatient non-cardiac surgery and chronically on at least one antihypertensive medication.
And these patients were randomised to one of two blood pressure management strategies that we define hypertension avoidance and hypertension avoidance based on the blood pressure abnormality that the strategy preferentially intended to avoid. And in the hypertension avoidance strategy, patients were having their chronic antihypertensive medications preoperatively and postoperatively managed based on a specific algorithm that was trying to avoid hypertension.
And so that was paying particular attention to the patient's blood pressure at different moments. And the other core component of this strategy is that chronic antihypertensive medication specifically chronic ACE inhibitor or ARBs were held in these patients at different times. And intraoperatively, anaesthetists were to target higher main arterial pressures in the hypertension of all this group, patients preoperative and postoperative were just given their chronic antihypertensive medications and intraoperatively the MAP target was 60 or greater.

Study results

Unfortunately, we did not find any difference on major vascular complications between the two groups and no difference on other clinical outcomes, including myocardial infarction including congestive heart failure between the two groups and no subgroup effect.
The results on the main outcome were consist across different subgroups, including whether patients were chronically on ACE inhibitor or ARB, based on the number of chronic antihypertensive medication these patients were on and based also on what systolic pressure these patients came to surgery with.

Take-home messages for clinicians

So we try to understand a little bit more our main results the lack of difference between the two strategies.
And what we found is that on one side compliant with the planning strategy, which was not optimal as expected in a complex intervention was actually not playing a major role. So even in centres with a greater compliance we did not find a difference between the two strategies.
And also we looked at the effects of the two strategies on hemodynamics. And we did not find major differences in systolic blood pressure and heart rate between the two groups.
So our take home message is actually that POISE-3 is responding, is answering our research questions showing that there is no difference intraoperatively in terms of major vascular outcomes, whether you target a MAP of 60 or greater or who higher MAPs, 80 or greater and then perioperative, before and after surgery whether you give patients chronic antihypertensive medication following an algorithm and holding ACE inhibitor or ARBs or just you continue all the antihypertensive medication did not make a difference in terms of hemodynamics effect and then vascular outcomes.

Further study recommendations

So POISE-3 is important because it informs two important questions that confront physicians every day, physicians that are taking care of patients coming for surgery. So POISE-3 results do not say that hemodynamics doesn't matter, hemodynamics matters. So we do think that further research is needed to identify and evaluate perioperative intervention that might have an impact on hemodynamics to the extent and into the direction that will eventually lead on favourable impact on clinical outcomes.