- My name is Dr. Philip J. Devereaux, I'm a cardiologist and a perioperative-care physician. I'm the Director of the Division of Perioperative Care at McMaster University. And I'm a senior scientist at the Population Health Research Institute. The title of my talk was tranexamic acid in patients undergoing non-cardiac surgery.

Importance of the Trial

Well globally, there's 300 million adult who have major surgery on an annual basis. So there's a lot of people having surgery and bleeding is a common complication after surgery and it is associated with lots of morbidity and mortality.
Tranexamic acid is a drug that's been around for a long time, and it may safely decrease major bleeding in patients having non-cardiac surgery.
So we undertook a trial to inform whether or not tranexamic acid was effective and safe in people having non-cardiac surgery.

Study Design and Patient Cohort

This was a randomised control trial. We also used a partial factorial design. So, everyone was randomised to tranexamic acid or placebo. The patients who were also on an anti-hypertensive medication, went into a partial factorial design or were randomised to a hypertension versus a hypertension avoidance strategy. Those results, we reported separately at the ACC and we included patients who were age 45 or greater undergoing in-patient non-cardiac surgery and were deemed to be at risk of bleeding and vascular event.

Study Outcomes

In the trial, we demonstrated that tranexamic acid worked. It prevented the primary composite of life threatening, major and critical organ bleeding. It reduced that by essentially 25% in relative terms a result that was highly statistically significant with the P value less than 0.0001.
On the safety side of it, tranexamic acid, which is an antifibrinolytic drug. We wanted to make sure that it was safe, didn't cause vascular thrombotic complications.
So for our primary safety endpoint which is vascular complications that occurred in 649 patients in the tranexamic acid group and 639 patients in the placebo group for a hazard ratio of 1.023 and a result that's not statistically significant.
The upper boundary of the confidence involved did surpass our non-inferiority margin, P value ended up being 0.04. However, when you look at the results of the data it shows that there's a 96% probability that we are below our non-inferiority safety margin. And overall there's really no separation in less than despite just under 1300 events. There's only a difference of 10 events between the two groups on safety.

Take-home Messages for Clinicians

There's an unequivocal benefit, if you take tranexamic acid for all comers age 45 or greater having in-hospital non-cardiac surgery, you reduce the risk of life threatening, major and critical organ bleeding by 2.7% result that was highly significant. And people have to offset that by low probability of any increase in the risk of a small increase in the risk of actually a

complication which was like in our study 0.3%. But again, it was a result that was not significant.
In a global context, it's important because globally we're short about 30 million units of blood for transfusions globally on an annual basis. Surgery accounts for 40% of all transfusions.
So based upon the POISE-3 results if tranexamic acid was made a standard of practice we could prevent about 8 million transfusions required on an annual basis, which highlights the potential for very important public health and clinical benefit.

Ongoing trials/studies to Confirm the Use of Tranexamic Acid in this Patient Population

So there's currently a trial undergoing right now which is looking at patients who are getting hepatic surgery.
In our group, André Lamy is leading us in a big trial in cardiac surgery.
In cardiac surgery tranexamic acid is already a standard of care, but we're doing a large trial where we're randomising patients to topical tranexamic acid versus IV formulation of tranexamic acid to see whether or not in fact that is safer in the cardiac surgery setting.
In the cardiac surgery setting they use much higher doses than we use. We use two grams for our intervention, in the cardiac surgery, they're commonly using four to five grams. And in that setting with higher doses seizure is a side effect. And so we're seeing if we give topical can we actually drive down because there's not much systemic absorption? Can we prevent the bleeding and actually create greater safety? So there's other ongoing trials that will allow for some important insights.
We hopefully will have our economic analysis coming out from POISE-3, which offers some very important insights also.