Publication Brief

Coronary Revascularization Trends in the United States, 2001-2008

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BACKGROUND
Coronary revascularization is among the most common hospital-based major interventional procedures performed in the United States with over 1 million procedures performed annually. It is uncertain how new revascularization technologies, new clinical evidence from trials, and updated clinical guidelines have influenced the volume and distribution of coronary revascularizations over the past decade.

OBJECTIVE
To examine national time trends in the rates and types of coronary revascularizations.

STUDY
A serial cross-sectional study with time trends of patients undergoing coronary artery bypass graft (CABG) surgery or percutaneous coronary interventions (PCIs) between 2001 and 2008 at US hospitals in the Healthcare Cost and Utilization Project’s Nationwide Inpatient Sample, which reports inpatient coronary revascularizations. This was supplemented by Medicare outpatient hospital claims. Annual procedure rates of coronary revascularizations, CABG surgery, and PCI.

RESULTS
- The annual rate of revascularization decreased significantly, by 15% (p<0.001).
- The CABG rate decreased significantly, by nearly 40%, from 1742 surgeries per million adults per year to 1081 (p<0.001).
- PCI rates did not change significantly (from 3827 procedures per million adults per year to 3667 procedures, p=0.74).
- The number of hospitals that provide CABG increased, resulting in a 28% decrease in the median CABG case load per hospital.

CONCLUSION
- Between 2001 and 2008, the annual rate of coronary artery bypass graft surgeries performed in the United States decreased by more than 30 percent, but rates of percutaneous coronary interventions (PCI; procedures such as balloon angioplasty or stent placement used to open narrowed coronary arteries) did not change significantly.
- The results “suggest the possibility that several thousand patients who underwent PCI in 2008 would have undergone CABG surgery had patterns of care not changed markedly between 2001 and 2008. Our data imply a sizeable shift in cardiovascular clinical practice patterns away from surgical treatment toward percutaneous, catheter-based interventions.”

TRANSONIC TAKE HOME POINTS
- According to Epstein’s analysis, more hospital are performing CABG, even though the total number of CABG surgeries are decreasing. This means that the number of call points for sales reps is actually increasing.

TRANSONIC TAKE HOME POINTS CONT.

- Doctors who perform a fewer number of CABG procedures will need surgical quality confirmation through flow-based graft patency confirmation even more than surgeons who perform many cases... to ensure successful outcomes.

  “Why should a surgeon measure flow during CABG?” The cardiologist who manages the patient decides when a patient is better served by CABG surgery than by stenting based on the patient’s condition and prior history. Measuring flow during CABG confirms that the flow needs have been met and a successful surgical outcome is ensured.

- Because stenting is taking precedence over CABG Surgery as the treatment modality of first choice for one or two blocked coronary arteries, one can presume that CABG surgery is advised for patients who can not or no longer can be stented: either they have already have stents, their coronary arteries are too narrow to stent or they have multi-vessel coronary artery disease. Thus, the need for immediate determination of graft patency for intraoperative quality control becomes more imperative.

- In 2000, beating heart CABG surgery was thought to become the new “gold standard” for CABG surgery. This has not happened and 75-80% of CABG surgeries continue to be On-pump. In On-pump CABG procedures, graft flows are measured after the patient has been weaned from cardiopulmonary bypass. Therefore, the reasons to measure flow in Off-pump and On-pump cases are the same as for Off-pump CABG: as a quality check of graft and anastomotic patency.

REFERENCES

