National Vascular Registry Report 2018: Summary for Anaesthetists

The NVR is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit and Patient Outcomes Programme and is designed to support quality improvement within NHS hospitals performing vascular surgery by providing information on their performance. The 2018 Annual Report is the sixth since the NVR was launched in 2013 and reports data primarily from 2017. In this summary we present of those data with direct relevance to vascular anaesthetists. The full report is available on the website.

https://www.vsqip.org.uk/reports/2018-annual-report/

Aortic aneurysms

1) ***Elective infra-renal AAA***

There were 4208 elective infra-renal AAA repairs in 2017:

- 1338 (32%) by open repair (OR)
- 2870 (68%) by endovascular repair (EVAR)

The proportion of cases performed by open repair and endovascular repair is similar to the previous 2 years.

- Overall in-hospital mortality rates: OR 3.2%; EVAR 0.7%
- Postoperative complications: OR 22%; EVAR 5.1%. Patients having OR were more susceptible to respiratory complications and renal failure, and the rate of return to theatre was also higher
- Postoperative admission to critical care: OR 97.6%, median length of stay of 2 days; EVAR 35.1%, median length of stay 1 day
- Readmission within 30 days: OR 5.5%; EVAR 5.8%
- Average length of stay: OR 8 days; EVAR 2 days

Overall compliance with standards related to the elective AAA care pathway (Percentage of patients meeting standard)

	2017	2016	2015
Elective patients were discussed at MDT meetings	83.0	78.3	74.4
Patients underwent a formal anaesthetic review	96.3	96.6	96.0
Patients whose anaesthetic review was done by a consultant vascular anaesthetist	91.6	91.9	92.2
Patients had their fitness measured	84.7	83.9	82.2
Most common assessment methods: CPET Echo +/- pulmonary function tests	 49.1 43.5	 47.1 45.6	 47.6 n/a

2) ***Ruptured AAA***

Despite the national screening programme, the number of aneurysm ruptures remains high, with 2,682 cases from January 2015 to December 2017.

Over this period, the choice of EVAR has remained static for ruptured AAA (approximately 30% compared to 70% for elective repair).

Patients undergoing EVAR for ruptured AAA had a lower in-hospital postoperative mortality compared to OR (22.9% and 42.3%, respectively). Direct comparison of these figures is difficult and the open procedures may represent the more complex cases. All NHS trusts demonstrated postoperative in-hospital mortality rates within the expected range.

There has been some concern that outcomes are worse for patients having surgery at the weekend. The in-hospital mortality rates for ruptured AAA repairs performed on weekdays and at the weekend were 35.2% and 39.4%, but the difference was not statistically significant

Recommendations:

- Vascular units should evaluate how access to EVAR can be improved for emergency repair of ruptured aneurysms. This may require review of anaesthetic as well as surgical aspects of the care pathway

Carotid endarterectomy

A total of 4,148 carotid interventions were submitted to the NVR in 2017. The number of procedures recorded in the NVR has decreased significantly (a 15% drop in two years). This seems to reflect a fall in activity rather than a reduction in case-ascertainment.

The median time from symptoms to surgery decreased from 13 days in 2016 to 12 days in 2017. However, there remains significant variation between NHS trusts, with the median delay ranging from 4 days to 36 days.

- 58% were performed under GA alone;
- 10.5% were performed under GA + regional anaesthesia
- 31.5% were done awake
- 93% of patients were on antiplatelet agents and 39% of these received local/regional anaesthesia block
- 54.6% of procedures involved the use of a shunt.

Medication for cardiovascular conditions was common among patients prior to surgery. Overall, 87.6% were taking statins. ACE inhibitors and beta-blockers were being taken by 37.9% and 24.1% of patients, respectively.

Surgical outcomes continue to be good and estimated rates of significant complication are low (see full report for more details).

- Complication rates were approximately 2%
- The rate of return to theatre was 2.7%

- The rate of readmission within 30 days was 4.3%
- The risk-adjusted rate of death/stroke within 30 days was 2.1%
- The average length of stay was 3 days

Areas of improvement highlighted by the report were:

- Time from symptoms to surgery. The benefit of surgery is much lower for most patients once 14 days have elapsed from the presenting symptoms. There was considerable variation in the median time to surgery during 2017. The median was 14 days or less for 58 of the 78 organisations and the median exceeded 20 days for 8 vascular units (half the number found in 2016).
- Case volume. There is a documented volume-outcome relationship between case volume and clinical outcomes for CEA. The VSGBI provision of services document recommends that vascular units perform a minimum of 40 CEA per annum. In 2017, over 33 units did not meet this standard. Further reconfiguration of services may be required, given the decreasing national caseload.

Lower Limb Interventions for Peripheral Artery Disease

1) Lower limb bypass

NHS hospitals submitted 17,475 open surgical bypass procedures to the NVR:

- 74.1% elective procedures and 79% emergency procedures were performed under general anaesthetic
- 13.4% elective procedures and 10.4% emergency procedures were performed under regional anaesthetic
- 9.5% elective procedures and 7% emergency procedures were performed under general+ regional anaesthetic
- 85.4% of patients were recorded as being on one anti-platelet agent
- In-hospital postoperative mortality rate was 1.2% for elective patients and 5.2% for emergency patients
- The length of stay was 5 days for elective cases and 15 days for emergencies.

The report assessed whether the rate of in-hospital mortality differed for operations that occurred during the weekend compared with those performed on weekdays.

The in-hospital mortality rates for emergency admissions performed on weekdays and at the weekend were 5.0% and 7.8%, but the difference was not statistically significant

2) Major lower limb amputation

Over the three-year data collection period, 9,293 major lower limb amputations were entered into the NVR.

- 52.7 % below-knee amputations (BKA), 47.3% above-knee amputations (AKA)
- 70.5 % were undertaken under general anaesthetic; 28.9% under regional anaesthetic; 0.6% under local anaesthetic
- It was common for patients to be on multiple medications (72% were prescribed antiplatelet therapy and 70% were prescribed a statin)
- Diabetes is common in this cohort (57%)
- Most patients were emergency admissions and > 80% underwent surgery during daytime hours – a key quality indicator in the VSGBI quality improvement pathway

All the NHS trusts had a risk adjusted rate of in-hospital death that fell within the expected range.

Recommendations:

- Vascular units should review local care pathways and patient outcomes for lower limb amputation, and adopt the care pathway and standards outlined in the Vascular Society's Quality Improvement Framework
- Vascular units should examine how to improve their performance against the NCEPOD recommendations for amputation

The VASGBI Research & Audit Committee has been actively involved in negotiations to amend some of the Anaesthesia data fields on the NVR. These had finally been agreed and will be implemented in January 2019. This would enable us to produce reports with more information on aspects of practice relevant to vascular anaesthesia. The NVR is a rich data source that can be used for both audit and research and it allows reports that can be used for appraisals. We encourage our members to actively engage with the NVR.

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Research and Audit Committee, VASGBI, November 2018