

CONTROVERSES ET ACTUALITÉS EN CHIRURGIE VASCULAIRE
CONTROVERSIES & UPDATES
IN VASCULAR SURGERY



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An anesthesiologist's perspective

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Disclosure

Speaker name:

.....Nicoletta Fossati.....

- I have the following potential conflicts of interest to report:
 - Consulting
 - Employment in industry
 - Shareholder in a healthcare company
 - Owner of a healthcare company
 - Other(s)
- I do not have any potential conflict of interest

ASA Physical Status Classification

Table 34.5 ASA classification of physical status and the associated mortality rates (for elective and emergency cases)

ASA rating	Description of patient	Mortality rate (%)
Class I	A normally healthy individual	0.1
Class II	A patient with mild systemic disease	0.2
Class III	A patient with severe systemic disease that is not incapacitating	1.8
Class IV	A patient with incapacitating systemic disease that is a constant threat to life	7.8
Class V	A moribund patient who is not expected to survive 24 h with or without operation	9.4
Class E	Added as a suffix for emergency operation	

From: Textbook of Anaesthesia by Aitkenhead, Rowbotham, Smith (4th Ed.)

RISK MARKERS

Table 34.4 Typical features which may increase the likelihood of significant perioperative complications or mortality

Preoperative feature		
Demographic/surgical	Physiological	Laboratory
Age > 70 years	Dyspnoea at rest or on minimal exertion	Plasma urea > 20 mmol L ⁻¹
Major thoracic, abdominal or cardiovascular surgery	MI < 6 months previously	Serum albumin < 30 gL ⁻¹
Perforated viscus (excluding appendix), pancreatitis or intraperitoneal abscess	Cardiac symptoms requiring medical treatment	Haemoglobin < 10 g dL ⁻¹
Intestinal obstruction	Confusional state	
Palliative surgery	Clinical jaundice	
Smoking	Significant weight loss (> 10%) in 1 month	
Cytotoxic or corticosteroid treatment	Productive cough with sputum, especially if persistent	
Controlled diabetes	Haemorrhage or anaemia requiring transfusion	

MI, myocardial infarction.

ANAESTHETIC TECHNIQUES

Techniques	Advantages	Disadvantages
Local	<ul style="list-style-type: none"> • Easy • Low impact • CV stability • Fast recovery 	<ul style="list-style-type: none"> • Limited procedures • Patient co-operation • LA toxicity
Regional	<ul style="list-style-type: none"> • Low-medium impact • Sympathetic blockade • CV stability • Better postoperative analgesia 	<ul style="list-style-type: none"> • High-skill technique • Patient co-operation • LA toxicity • Effect of anticoagulation • Nerve damage
General	<ul style="list-style-type: none"> • Proximal/complex procedures • Control on patient variables 	<ul style="list-style-type: none"> • Higher risk • Effect on CV function • Longer recovery/discharge



The Literature?

ANESTHETIC ACTIONS AND OUTCOMES

SECTION EDITOR

JOHN H. TINKER

Risk Factors in Patients Having Surgery to Create an Arteriovenous Fistula

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Patients requiring creation of an arteriovenous (AV) fistula for long-term dialysis access have a high incidence of cardiovascular risk factors, as well as immunosuppression, neuropathy, and platelet dysfunction related to renal failure. However, the morbidity and mortality of AV fistula creation, and the effect of anesthetic technique on outcome, have not been reported. We therefore retrospectively studied all patients ($n = 469$) having an AV fistula placed at the Mayo Clinic between 1986 and 1991. Preoperative variables studied were age (mean 63 ± 14 yr), sex (60% male), diabetes mellitus (26% incidence), hypertension (92%), the presence of a previous AV fistula (31%), coronary artery disease (86%), and previous myocardial infarction (MI) (42%). Outcome variables studied were fistula failure prior to first attempted dialysis (8.7% incidence), infection (3.4%), neuropathy (1.9%), seizure (0.2%), nonfatal cardiac event (MI or arrest) (1.5%), and fatal cardiac event (2.1%). Associations of preoperative factors, outcomes,

and anesthetic technique were analyzed by analysis of variance and Wilcoxon rank sum analysis for age, and by exact conditional frequency table analysis for all other factors. A previous AV fistula was associated with infection ($P < 0.002$) and nonfatal cardiac events ($P < 0.003$). Increased age ($P < 0.025$) and previous MI ($P < 0.01$) were associated with adverse cardiac outcomes. Neither local anesthesia, brachial plexus block, nor general anesthesia were significantly associated with an increased frequency of any adverse outcome. The comparison of general with local and brachial plexus anesthetics was limited by low statistical power. However, with greater power our data suggest that invasion of a major nerve plexus with brachial plexus block, compared to local infiltration at the operative site, does not increase the risk of infection, neuropathy, seizure, or adverse cardiac outcome.

(Anesth Analg 1994;79:694-700)

THE LITERATURE - 1

- High prevalence of CAD and previous MI
(Solomonson et al, Anesth Analg 1994; 79:694-700)
- Cardiac causes involved in fatalities
(Solomonson et al, Anesth Analg 1994; 79:694-700)

THE LITERATURE - 2

- Some evidence that regional anaesthesia impacts favourably on AVF maturation time (Malinzak EB, Gan TJ, Anesth Analg 2009;109:976-80)
- No significant association of anaesthetic technique with patient outcomes (Solomonson et al, Anesth Analg 1994)

THE LITERATURE - 3

- CHF aggravation as a contraindication to vascular access (KDOQI Guidelines for Vascular Access, Update 2006)
- Relationship between high inflow and haemodynamic impact (Basile et al., Nephrol Dial Transplant 2008)

Nephrol Dial Transplant (2008) 23: 282–287
doi:10.1093/ndt/gfm549
Advance Access publication 17 October 2007



Original Article

The relationship between the flow of arteriovenous fistula and cardiac output in haemodialysis patients

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“High predictive power for high-output cardiac failure of Qa cutoff values ≥ 2.0 L/min”

DISCUSSION POINTS

- Risk/benefit ratio essential - Evidence?
- Traditional invasive monitoring often inadequate
- New monitoring tools extremely interesting (e.g., oesophageal Doppler CO)
- Regional techniques increasingly coupled with ultrasound (US) use

FUTURE TRENDS - my hopes

- More studies on patient outcomes
- Novel hemodynamic monitoring increasingly important
- Increased impact of US techniques on regional anesthesia use
- Expansion of vascular anesthesiologists' repertoire