Acute Lower Limb Revascularization in a Patient with Current Acute Myocardial Infarction and Low Ejection Fraction

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The optimum anesthetic goals are to prevent further extension of cardiac ischemia and hemodynamic collapse. Our specific goals in patients with current myocardial infarction and low ejection fraction are:

1. Maintain lower-than-normal normal heart rate
2. Avoid hypotension and hypertension
3. Avoid increase in myocardial contractility
4. Maintain normothermia
5. Maintain oxygenation
6. Continue anticoagulation during revascularization procedure

OUR ANESTHESIA TECHNIQUE

- Sciatic and femoral nerve block
- Monitored anesthesia care with dexmedetomidine infusion, intermittent fentanyl and low-dose ketamine
- Phenyphrine infusion to maintain mean arterial pressure greater than 80 mm Hg
- Maintain normothermia
- Maintain oxygenation
- Continue anticoagulation during revascularization procedure

Dexmedetomidine in Acute MI

- Moderately decreases heart rate, which is beneficial.
- May cause hypotension, which should be avoided with phenyphrine infusion
- Provides analgesia
- Decreases the need for propofol. (Propofol decreases blood pressure more than dexmedetomidine).

Why Are Hemodynamic Goals Important?

- A lower-than-normal normal heart rate is desirable. Coronary perfusion occurs during the diastolic period; an increased heart rate increases myocardial oxygen consumption while decreasing the diastolic period and myocardial oxygen supply.
- An increase in afterload will increase myocardial oxygen consumption as the heart must pump against resistance.
- An acute MI patient with low ejection fraction will not be able to compensate for any acute decrease in systemic vascular resistance.

CONCLUSION

We achieved our hemodynamic goals using nerve blocks and monitored anesthesia care with careful attention to patient oxygenation. We avoided laryngoscopy and intubation and their adverse hemodynamic effects.

References: