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Further benefits of norepinephrine in septic shock

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Keywords

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Comments

Despite the small number of patients involved, norepinephrine appears to be of benefit in patients with low SVR and poor myocardial function associated with septic shock. Although this is probably relativel common practice in some ICUs already, it is comforting to have some evidence that clinical practice corresponds with evidence from clinical trials.

Introduction

Septic shock is often characterised by a relative loss of intravascular volume with increased vascular permeability and reduced systemic vascular resistance (SVR). In such states cardiac index (CI) is increased despite evidence from human and animal work that both ventricles are dilated and poorly contractile.Dobutamine appears a suitable inotrope to improve cardiac performance for patients with septic shock. However, concerns about the lack of alpha-adrenergic properties and decrease in SVR due to the beta-adrenergic actions of dobutamine have raised clinical concerns over its use in septic shock.

Aims

This study examined the effect on hemodynamic variables of the addition of norepinephrine to patients with septic shock, which was refractory to treatment with dobutamine. The authors concentrated on CI and stroke volume index (SVI) as markers of ventricular function.

Methods

This was a prospective, interventional study, set in an adult ICU, with no control group.

Group one (14 patients) consisted of patients with septic shock that was unresponsive to treatment with dobutamine. They were treated with the addition of norepinephrine and adequate ventricular loading, optimised by intravascular fluid administration according to pulmonary capillary wedge pressure (PCWP).

Group two (12 patients) were patients with septic shock associated with a high cardiac output who received norepinephrine alone.

Results

The patients in group one were significantly older than those in group two. The addition of norepinephrine to the group one patients, improved mean arterial pressure, CI, SVI, SVR and left ventricular stroke work index (LVSWI). In group two, norepinephrine had no effect on CI or SVI but significantly increased MAP, LVSWI and SVR. Measured blood lactate decreased in both groups.

Discussion

The authors conclude that the addition of norepinephrine to those patients with septic shock (who are unresponsive to dobutamine alone) is associated with improved MAP, CI, SVR and LVSWI. They suggest that norepinephrine is of benefit to patients with inadequate myocardial performance associated with low SVR.

References

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