

Systemic Responses to Tourniquet Release in Children (Abstract)

Source: Lynn AM, Fischer T, Brandford HG, Pendergrass TW. Systemic responses to tourniquets release in children. *Anesth Analg* 1986;65:865-72

ABSTRACT

The hemodynamic and metabolic effects of deflation of pneumatic tourniquets were assessed in 15 children, seven of whom had bilateral tourniquets applied. Systemic acidosis from release of lactate and PaCO₂ after tourniquet deflation did not cause adverse effects in these healthy children. Larger increases in lactate were seen with larger tourniquet inflation times (>75 min) or with bilateral tourniquets. The greatest decrease in pH was seen with simultaneous deflation of bilateral tourniquets. Heart rate did not change with tourniquet deflation, whereas systolic blood pressure decreased 8-10 mm Hg with deflation. Blood pressure returned to control values within 5-10 min; no arrhythmias were seen. Recommendations to minimize the systemic metabolic effects after release of tourniquets in children under general anesthesia include the following: 1.) attempt to limit tourniquet inflation times to <75 min; 2.) use controlled ventilation prior to and after tourniquet deflation to remove the respiratory component of acidosis; 3.) check blood gas tensions within 5 min of tourniquet deflation in children with long tourniquet inflation time (>75 min), and where bilateral tourniquets are deflated simultaneously or within 30 min of each other.