

## EFFECT OF OXIGEN-DERIVED FREE RADICALS SCAVENGERS ON ISCHEMIA-REPERFUSION DERIVED SHOCK

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Previous works have demonstrated that Oxigen-derived Free Radicals (OFR) scavengers reduce the ischemic and reperfusion injuries in the small bowel and the liver, and therefore they decrease the mortality caused by the ischemic and reperfusion syndrome (IRS). This work was designed to check if antioxidant therapies may ameliorate the shock induced by IRS.

**Methods:** Sprague-Dawley female rats, weighting 200 g were anaesthetized with sodium Pentobarbital (30 mg/kg) and Diacepam (2.5 mg/kg). All of them had their airway and femoral vessels cannulated (the artery for arterial pressure monitoring and the vein for therapeutics administration). The urinary output was measured by an uretral cannula and EKG was controlled. Through a midline laparotomy the superior mesenteric artery flow was blocked during 60 min. The monitoring and anaesthesia was continued for 180 min. during the reperfusion period. The mortality was assessed after 48 hours. Every experimental group was composed of 12 rats: a) *Sham* operation. b) *Clamping* of the SMA. c) *Controls*: clamping of the SMA, and infusion of 2 ml of saline during the last 20 min. of the ischemia. d) *Folinic acid*: 2.5 mg/kg. e) *Allopurinol*: 50 mg/kg. f) *SOD*: 7 mg/kg. g) *Alfatocoferol*: 20 mg/kg. h) *Christalloids*: Ringer's Lactate during the 3 first hours of reperfusion, in order to maintain an arterial pressure of, at least, 80 % of the control values. i) *Coloids*: Hidroxietil-starch with the same criteria, but only a maximum of 25 ml. j) *Col. + Fol.* k) *Col + Allo.* l) *Col + SOD.* m) *Col + Alfa-Toc.*

**Results:** During the ischemic period the hemodinamics did not vary. In the control group during the reperfusion period appeared many characteristics of Shock, such as: low arterial pressure, diminution of urinary output, tachicardia and tachipnea.

	Mortality %	Survival	MAP		Heart Rate		Respiration Rate		Diuresis	
			ischemia	reperfusion	ischemia	reperfusion	ischemia	reperfusion	ischemia	reperfusion
Control .....	83	=	=	=	=	++	=	=	=	=
Folinic .....	50	=	=	=	=	=	=	=	=	=
Allo .....	91	=	=	=	=	=	=	=	=	=
SOD .....	75	=	=	=	=	=	=	=	=	=
Alfa .....	66	=	=	=	=	=	=	=	=	=
Cristalloids .....	75	=	=	=	=	=	=	=	=	+
Col .....	75	+	=	+	=	-	=	=	=	++
Col + Fol .....	33	++	=	+++	=	++	=	++	=	+++
Col + Alo .....	66	+	=	++	=	=	=	=	=	++
Col + SOD .....	58	+	=	++	=	=	=	=	=	++
Col + Alfa .....	50	++	=	+++	=	=	=	=	=	++

(=) No differences to controls. (+) No significant improvement. (++) Significant improvement. (+++) Striking improvement. (-) Worsening.

**Conclusions:** The antioxidant therapies do not modify the mortality caused by the ischemic and reperfusion shock. The administration of colloids improves the hemodinamic parameters, such as Arterial Pressure on diuresis; it also improves the survival. The association of colloids and antioxidants improves the hemodinamic parameters and diminishes the mortality, specially in the group treated with Folinic acid.