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TRIMER OF 15-DEHYDRO-PGG1 IMPROVES RECOVERY OF
MITOCHONDRIAL FUNCTION AFT. (U) OREGON HEALTH SCIENCES
UNIV PORTLAND L L WIDENER ET AL. 30 NOV 87

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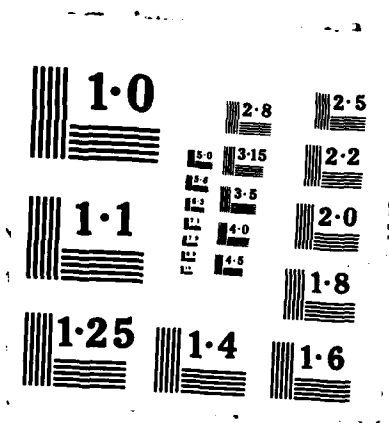
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| <p>The efficacy of (PGB₁)₃ in protecting renal mitochondrial function from ischemic reperfusion injury was firmly established in a series of experiments in rats.</p> <p>Renal ischemia was induced by unilateral closure of the renal artery with an arterial clip. After 48 minutes of ischemia the clip was opened to recover blood flow. At this time treated animals were given a bolus injection, I.P., of 2.5 mg/kg (PGB₁)³. Sham controls received an injection of the vehicle. The animals were sacrificed 24 hours later, renal mitochondria were isolated and their function analyzed. (over)</p> | | | | |
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AD-A188 517

19. (continued)

| | State 3 Rate | | | [Cytochrome] | | | Ca ²⁺ uptake nmoles/min/mg |
|-----------------------------------|----------------------------|----------------------|-------|-----------------|----------|----------|--|
| | moles O ₂ /mole | aa ₃ /min | | nmoles/mg | Protein | | |
| | PC | PYR | βOHB | aa ₃ | b | c | |
| Control | 177±13 | 177±9 | 167±9 | .21±.01 | .20±.008 | .55±.03 | 437±13 |
| 48 min Isch. +24 hrs Reperf. | | | | | | | |
| -(PGB ₁) ₃ | 59±19 | 45±9 | 45±13 | .14±.01 | .23±.02 | .30±.001 | 150±138 |
| +(PGB ₁) ₃ | 162±15 | 114±29 | 122±5 | .19±.01 | .22±.01 | .53±.02 | 413±23 |

Our data indicate that a bolus injection of (PGB₁)₃ given at the time of reflow provides significant improvement of mitochondrial function after 48 minutes of renal ischemia in the rat. Reprints. Traumatic shock ←

CIRCULATORY SHOCK

THE SHOCK SOCIETY PRESENTS
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188

TRIMER OF 15-DEHYDRO-PGB₂ IMPROVES RECOVERY OF MITOCHONDRIAL FUNCTION AFTER RENAL ISCHEMIA. Wings L. Wigener, Dagmar Bartos and Leena Mela-Riker, Departments of Surgery, Biochemistry and Pediatrics, Oregon Health Sci. Univ., Portland, OR.

Oligomeric mixtures of prostaglandin B₂ are protective against mitochondrial functional failure after tissue ischemia. The active component of the PGB₂ mixture is unknown. We used the trimer of 15-dehydro-PGB₂ to test its protective effect in renal ischemia. Renal ischemia was induced by a unilateral closure of the renal artery in the rat. After a 45 min. ischemic period the arterial clip was opened to recover renal blood flow. At this time the treated animals received a bolus of 2.5 mg/kg 15-dehydro-PGB₂, IP. The untreated animals received an injection of the vehicle. The animals were sacrificed after 24 hours, renal mitochondria were isolated and their function analyzed. The data are shown in the Table.

| | [CYTOCHROME] n moles/mg | | | STATE 3 RATE moles O ₂ /mole aap/min | |
|------------------------|-------------------------|-----------|-----------|---|---------------|
| | a ₅₃ | b | c | pyruvate | α-OH butyrate |
| CONTROL | 0.24±.03 | 0.22±.03 | 0.63±.1 | 158±23 | 148±28 |
| ISCH 45 MIN | 0.13±.02* | 0.23±.002 | 0.30±.08* | 87±5* | 74±19* |
| 2- - PGB ₂ | 0.17±.04* | 0.19±.03 | 0.47±.06* | 63±21* | 76±41* |
| HRS + PGB ₂ | 0.19±.01 | 0.22±.03 | 0.51±.05 | 102±28* | 115±30 |

These data indicate that a bolus injection of the trimer of 15-dehydro-PGB₂ given at the time of reflow provides significant improvement of mitochondrial function after 45 min of renal ischemia in the rat. Supported by Office of Naval Research.

Oligo-PGE₁ ProgramAnnual, Final and Technical Reports

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