RESUMEN ENVIADO



Estimado/a **Mónica B. Jiménez Castro**, su RESUMEN ha sido recibido con los siguientes datos:

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Area temática: Básica

TITULO: A NEW TRANSPORT AND PRESERVATION MEDICAL DEVICE FOR LIVER TRANSPLANTATION

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Resumen:

Background: The injury of the graft sustains during cold ischemia time negatively results in a poor quality of life for the patient, the need for transplanting again, and more problems in the availability of organs for transplant because liver grafts from extended criteria donors are extremely vulnerable to cold ischemia injury. Our aim is provide a new device in transplantation based on the combination of ultrasounds and hypothermia for liver transport and preservation that increases viability of liver grafts during cold ischemia before being implanted in the recipient, in comparison to what could be obtained with known devices.

Methods: Pig livers grafts from the Landrace breed were perfused with preservation solution at 4ºC to remove the blood and placed on the transport device with or without ultrasound and maintained in such conditions during the ischemic period (8h). To assess damage induced by ischemia, transaminase and lactate dehydrogenase levels were measured in the perfusate and by means of determining the caspase 3 activity in liver tissue. Malondialdehyde levels were determined in liver tissue as an oxidative stress index, and ATP levels were determined as an organ energy metabolism preservation index.

Results: The protection of liver grafts (confirmed by the reduction in transaminases, lactate dehydrogenase, caspase 3 and MDA as well as ATP preservation) conferred by UW solution under cold conditions (2-6oC) is higher than that obtained with Celsior or Ringer solution. A synergistic protective effect was observed because the protection obtained when both treatments (cold conditions and ultrasounds at low frequency and intensity) are combined is much better than the sum of protections obtained when both treatments are applied separately. The protection conferred by ultrasounds were

independently of the preservation solution used.

Conclusions: The obtained results indicated a synergistic effect when both treatments (cold conditions and ultrasound) are combined because the protection obtained when both treatments are combined is much better than the sum of protections obtained when both treatments are applied separately. Furthermore, the protection obtained when both treatments are combined and in the presence of preservation solution is much better than that obtained when both treatments are combined without preservation solution. Finally, we provide a novel method and equipment for transporting and storing liver grafts under better conditions than those currently available.

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