Portal and Arterial Washout after Hypothermic Preservation of the Pig Liver: Prevention of Hyperkalaemia after Revascularization

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In an orthotopic liver transplantation (OLT), portal revascularization may produce acidosis and hyperkalaemia due to loss of intracellular acid metabolites and K^+ during hypothermic preservation. To verify the effectiveness of portal and arterial washout in preventing hyperkalaemia after liver preservation, an

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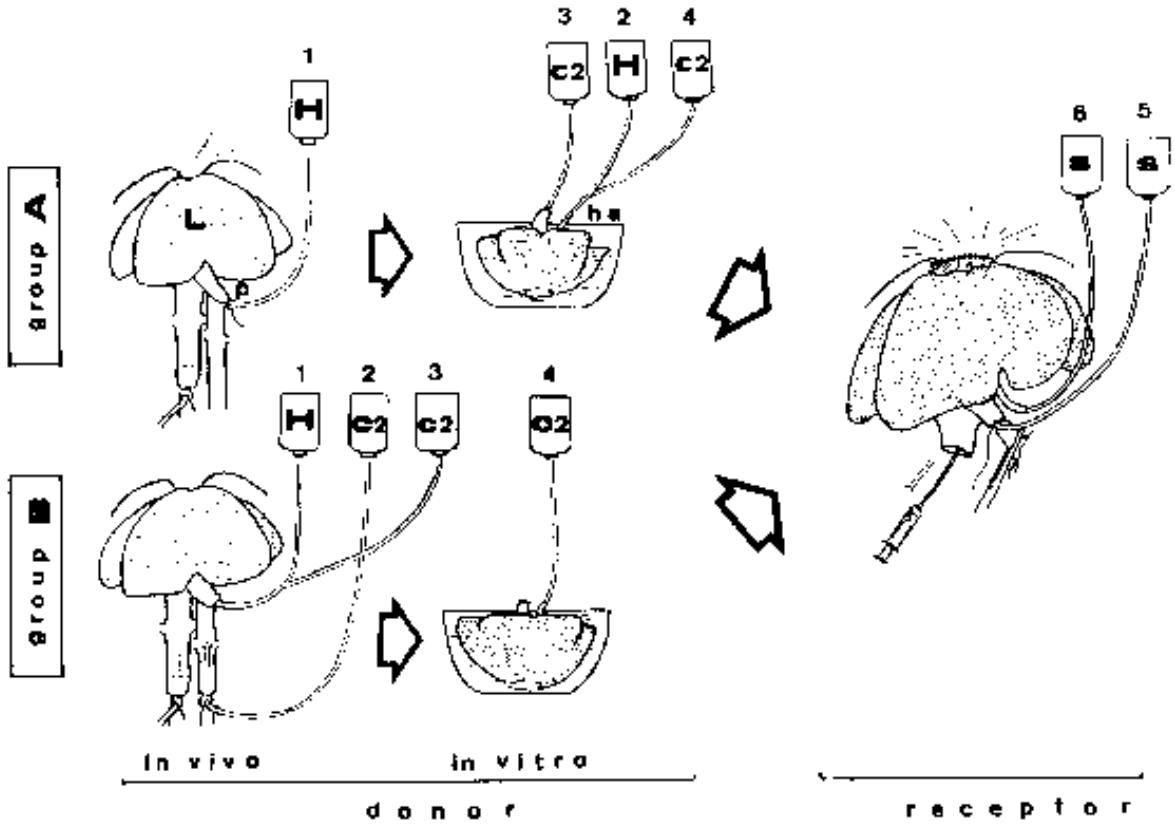

FIG. 1.—Schematic representation of liver perfusions used in this study. H = Hartmann's solution; C_2 = C_2 Collins solutions; S = Physiological serum; L = Liver; p = portal vein; ha = hepatic artery.

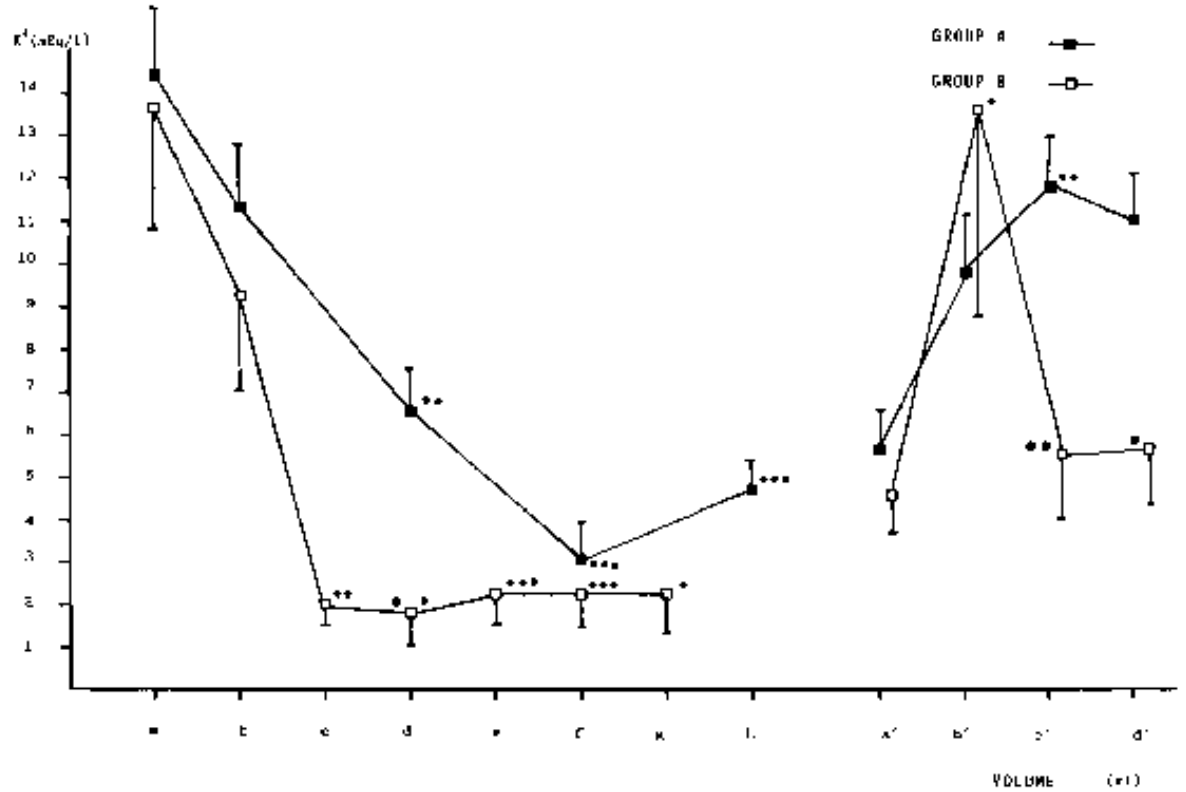

FIG. 2.—K^+ concentration in the effluents obtained through infrahepatic inferior vena cava (IH-IVC) after portal and arterial perfusion with physiological serum at room temperature at the end of the preservation period and before portal revascularization in the recipient. The samples were taken after portal perfusion of 50-75 ml (a), 100-175 ml (b), 180-200 ml (c), 200-250 ml (d), 280-310 ml (e), 300-350 ml (f), 350-400 ml (g) and 400-500 ml (h) and after arterial perfusion with 20-60 ml (a'), 80-100 ml (b'), 120-180 ml (c') and 200-300 ml (d').
Group A: In vitro liver perfusion with C_2 Collins solution at 4°C by the arterial route.
Group B: In vivo liver perfusion with C_2 Collins solution at 4°C by the arterial route.
*$p<0.05$, **$p<0.01$, ***$p<0.001$ as compared to the control values.
•$p<0.05$, ••$p<0.01$, •••$p<0.001$ as compared to the group A values.

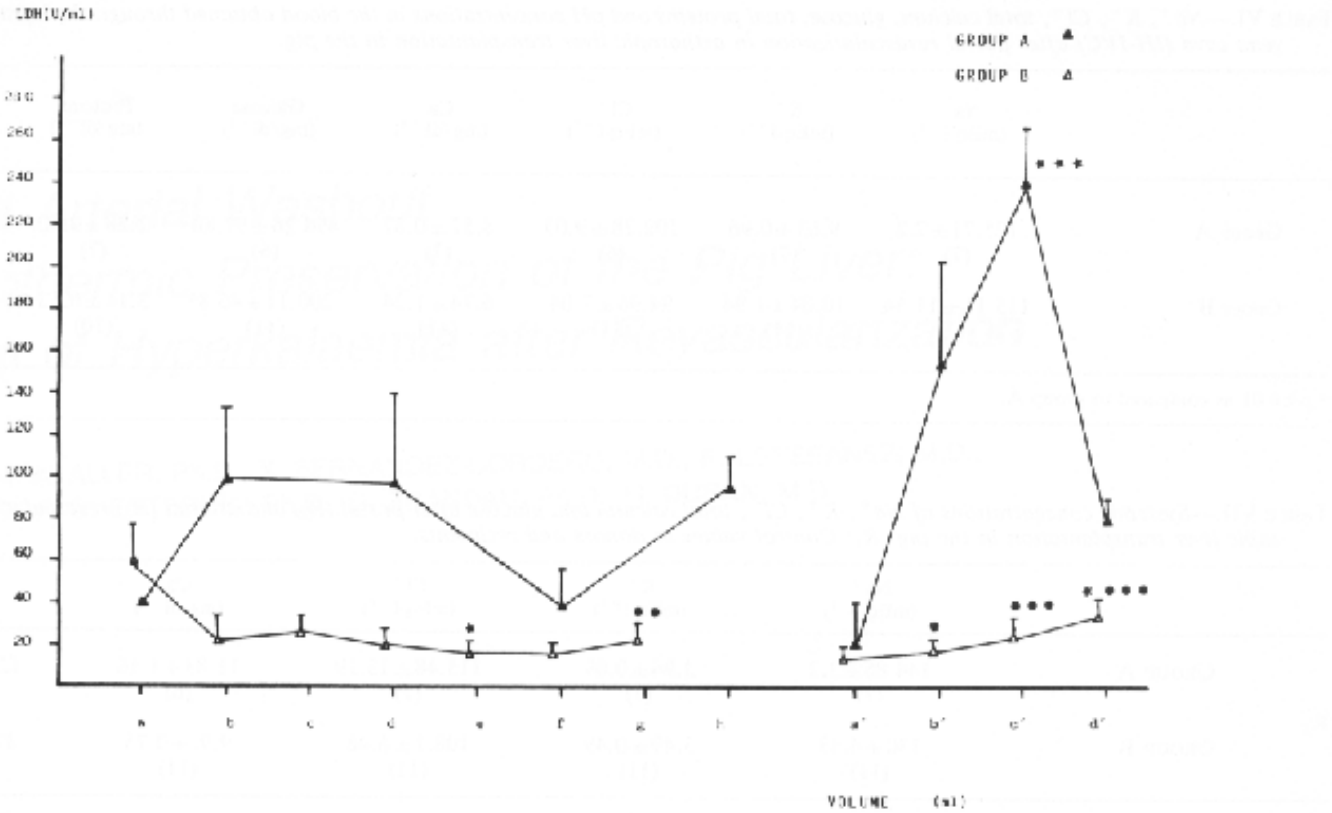

FIG. 3.—LDH concentration in the effluents obtained through the infrahepatic inferior vena cava (IH-IVC) after portal and arterial perfusion with physiological serum at room temperature at the end of the preservation period and before portal revascularization in the recipient. The samples were taken after portal perfusion of 50-75 ml (a), 100-175 ml (b), 180-200 ml (c), 200-250 ml (d), 280-310 ml (e), 300-350 ml (f), 350-400 ml (g) and 400-500 ml (h) and after arterial perfusion with 20-60 ml (a'), 80-100 ml (b'), 120-180 ml (c') and 200-300 ml (d').
Group A: In vitro liver perfusion with C_2 Collins solution at 4°C by the arterial route.
Group B: In vivo liver perfusion with C_2 Collins solution at 4°C by the arterial route.
*$p<0.05$, **$p<0.01$, ***$p<0.001$ as compared to the control values.
•$p<0.05$, ••$p<0.01$, •••$p<0.001$ as compared to the group A values.