

**Muller C, H Zimmer, M Gross, U Gresser, I Brotsack, M Wehling, W Pliml. Effect of ribose on cardiac adenine nucleotides in a donor model for heart transplantation. *Eur J Med Res* 1998;3:554-558.**

Preservation time of explanted hearts is short. Cardiac function after transplantation declines dramatically in hearts that have been preserved for more than 4 to 6 hours. This has been linked to a critical decrease in high energy phosphates (HEP) after explantation. Ribose has previously been shown to stimulate HEP synthesis and to improve cardiac function. In this study, ribose was infused into 20 rats for 24 hours continuously before explantation (donor treatment) and also added to the solutions used for preservation. Saline was used in the control group. Myocardial tissue biopsies were taken after 24h of infusion and after 4h of preservation. High energy phosphates were determined by HPLC. Adenosine triphosphate content (ATP), energy charge and total adenine nucleotides (TAN) were significantly lower after 4h of preservation in both the ribose-treated and the control group compared to hearts before preservation. The difference in mean ATP concentrations between the 4 hours preserved ribose group and the control group was not significant. Single case analysis however revealed a minimum ATP level of 12.3 micromol/g dry weight in 10 ribose treated hearts whereas 2 out of 11 control hearts showed ATP levels below 10 micromol/g dry weight. - This study supports the hypothesis that ribose treatment is capable of maintaining ATP at a higher level in preserved rat hearts. Donor treatment and metabolic support with ribose during organ preservation may be suitable to prolong preservation time of donor hearts.

