

Quick Review of Model System Research

Propranolol Attenuates Hemorrhage and Accelerates Wound Healing in Severely Burned Adults¹

What is the study about?

This study aimed at investigating and reporting peri-operative effects of propranolol administration in adults with severe burn injury. Propranolol has been shown to increase vascular resistance diminishing peripheral blood flow following burn injury. Previous studies have reported that administration of propranolol has increased body composition, resting energy expenditure, and cardiac function.

Who participated in the study?

Participants of the study included 69 adults with $\geq 30\%$ total body surface area (TBSA) burns. Inclusion criteria included patients who were treated with at least one surgical skin grafting procedure. Informed consent for the study was obtained from participants, which was approved by the Institutional Review Board of the University of Texas Medical Branch.

How was the study conducted?

Participants were divided into two cohorts: control (34 participants) and those treated with propranolol (35 participants). Participants in the control group received standard burn care and those in the propranolol group received propranolol in addition to standard burn care. The two groups were similar in terms of sex, gender, age and burn severity, but the control group had a higher total body surface area (TBSA) burned than the group treated with the drug. The researchers checked patients' nutrition and measured patients' estimated blood loss, wound healing progress (and how many skin grafts patients received), blood loss during skin grafts, and the daily heart rate of patients. Researchers used statistics to determine the relationship between propranolol and the estimated blood loss, wound healing and mean daily heart rate. The results were compared for both cohorts.

What did the study find?

Patients treated with propranolol were reported to have lower daily mean heart rates, heart rates that returned to normal much faster than patients in the control group. The group receiving propranolol also had more rapid time to wound healing, and lowered estimated blood loss as compared to patients in the control group. Researchers concluded that propranolol diminishes blood loss and speeds wound healing in patients with severe burn injury.

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¹ Ali, A., Herndon, D.N., Mamachen, A., Hasan, S., Anderson, C.R., Grogans, R.,...Finnerty, C.C. (2015). Propranolol attenuates hemorrhage and accelerates wound healing in severely burned adults. *Critical Care*, 19(217). DOI 10.1186/s13054-015-0913-x