

ABSTRACT

Prospective analysis of flap perfusion by measuring Capillary Glucose levels in pedicled flap and free tissue transfer

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- **Introduction-** Flap surgery is one of the most commonly performed surgeries in the field of reconstructive surgery. Early detection of flap failure and rapid re-exploration are important for flap salvage and hence a reliable monitoring method is required. This study is to evaluate flap blood glucose measurement (BGM) as a reliable method for flap monitoring.
- **Objectives** - To assess the efficacy of flap capillary glucose level and its best cut-off value in the post-operative monitoring of pedicled and free flaps.
- **Material and Methods** – 60 different flaps were included in study. Post-operative examination was done every hour for the first 6 hours, and every 6th hour thereafter till 5 days. Flap capillary glucose levels were measured by using accu check glucometer. Glucose levels of flap with necrosis and without necrosis were compared. Statistical analysis was done by ROC curve to determine the best cutoff value for the flap blood glucose monitoring.
- **Result** - Out of 60 flaps 42 flaps survived fully without any complication, while there was minor distal necrosis in 11 flaps and major partial necrosis was seen in four flaps (two reverse sural artery flap and two random pattern flaps. Complete flap loss was seen in 3 patients (two free flaps and one pedicled axial flap). To detect flap ischemia a cut-off value of 61 mg/dL was determined for the flap BGM, at which the sensitivity and specificity were 91% and 80% respectively.
- **Conclusion-** From the current study we concluded that flap capillary glucose levels less than 61 mg/dl is suggestive of ischemia of flap. This test allows early detection of vascular compromise which helps in early intervention for flap salvage. Flap blood glucose monitoring is an Objective, Easy to do, In-expensive, sensitive and specific test. This test can be done by any medical professional (Nurses/ Interns/ Paramedics) without need of any specialised setup.