EFFECT OF SODIUM–GLUCOSE CO-TRANSPORT-2 (SGLT-2) INHIBITORS ON INTRA ORAL WOUND HEALING IN ALBINO RATS, AN EXPERIMENTAL STUDY

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ABSTRACT

Purpose

Wounds are common conditions of the oral cavity. Wound healing is a primary survival mechanism in human beings. Wound healing comprises a sequence of complex biological processes and sequences. All oral tissues follow an essentially identical pattern to complete the healing process with minimal scar formation. The oral cavity is a remarkable environment in which wound healing occurs in the warm oral fluid containing millions of microorganisms, it is possible to manipulate wound healing favorably by various drugs and factors. Insulin has been found to promote wound healing, by increasing cellular proliferation, mineralization of tissue, angiogenesis and by decreasing apoptosis in diabetic wounds. Its pro-healing property in non-diabetic individuals are compromised by its hypoglycemic side effects. Sodium-glucose co-transporter -2 (SGLT-2) inhibitors could be of some usefulness in non diabetic individuals, as they act by increasing endogenous insulin secretion. However, there is sparse information about the pro-healing effect of SGLT-2 inhibition on non diabetic wounds in the oral cavity. So the effect of Dapagliflozin and Capagliflozin (SGLT-2 inhibitors) on intraoral wound healing in non diabetic albino rats was planned.

Experimental Design

Dapagliflozin and Capagliflozin (SGLT-2 inhibitors) was administered to senile rats for 16days. A portion of the gingiva was removed to denude the palatal bone. Wound size, biological parameters, blood glucose was assessed and histologic sections were analyzed to determine the wound healing status.

Results

The percentage closure of the wound is calculated on 4th, 8th, 12th and 16th day. When compared to control, dapagliflozin and capagliflozin treated groups showed significant percentage wound closure. No significant differences in blood glucose levels (mg/dl) were observed after 8 or 16 days of drug treatment.

Conclusions

Dapagliflozin and Capagliflozin (SGLT-2 inhibitors) showed significant intraoral healing compared to control groups. Immunohistology staining showed rich vascularity and angiogenesis in the overlying soft tissue.

KEYWORDS: Dapagliflozin, Capagliflozin, SGLT-2 Inhibitors, Non Diabetic & Intraoral Wound.