Identification of predictors of complication (Diabetic foot ulcer) in type II diabetes and assessment of the effectiveness of Aloe Vera Gel on the Healing of Diabetic foot ulcer in Diabetic patients

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ABSTRACT

Diabetic foot problems are common throughout the world resulting in major health consequences for patients and their families. In developing countries there is about 25% lifetime risk of occurrence of diabetic foot ulcer in patients suffering from diabetes.

The predictors for the development of foot ulcers vary according to their geographic location and life style patterns. Intensive methods to identify the predictors may help to prevent the development of foot ulcer. In the event of developing ulcer, effective ulcer healing strategies are to be adopted.

In this study the identification of predictors was done by case control method from a population of patients with type II diabetes who were attending (IP & OP) of a secondary care hospital at Trichy. A descriptive correlational design with the purposive sampling was used to compare the background variables and predictors between the cases & controls. From the cases (patients with foot ulcer), the subjects were chosen by cluster random assignment to assess the effectiveness of aloe vera gel in the healing of diabetic foot ulcer. A true experimental approach or RCT with pre-test post-test control group design was used. The experimental group had the dressing with aloe vera gel and the control group with the betadine gel. The ulcer assessments were done for both groups at different intervals of time.

Out of the many predictors studied in the development of foot ulcer among the rural population of South India, vibration perception threshold, impairment in perception of heat in the left and right leg, presence of fissure in the leg, history of previous foot ulcer and absence of regular foot wear use had significant association. The background variables like educational status, heavy level of activity and poor economic status were found to be associated with to the development of foot ulcer.

The use of aloe vera gel dressing on the foot ulcer was found to have effect in the ulcer healing process like reduction in the type of necrotic tissue, production of granulation tissue, regeneration of epithelial tissues at a highly significant level (p<0.001), and measures like edges, peripheral tissue induration, peripheral tissue oedema had a significant level of healing at p<0.01 level. Measures like necrotic tissue amount, exudates type, exudate amount had a clinically significant level of healing at p<0.05 level when compared to the betadine gel dressing as assessed at different intervals of time.
Among the patients who had the aloe gel dressing, females had a prolonged healing time when compared with the males. The longer the duration of illness, the rate of healing was also prolonged. If the patients BMI was below 25 (malnourished) the rate of healing was prolonged. Elevated levels of LDL caused prolonged rate of healing.

The identified predictors of foot ulcer in this study may help in the prevention/delay in the ulcer development among the rural population of South India. Using Aloe vera gel in diabetic foot ulcer dressing can enhance better patient outcome if identified and treated early.