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## The role of preoperative hemoglobin *A1c* in the occurrence of atrial fibrillation following on-pump coronary artery bypass surgery in type-2 diabetic patients

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**Background:** Several factors can predict the development of atrial fibrillation following cardiac surgery in diabetic patients. Nonetheless, the role of hemoglobin *A1c* is yet to be investigated.

**Methods:** We prospectively studied 708 type-2 diabetes patients (433 men [61.2%]), who were candidate for isolated coronary artery bypass grafting and met the study criteria. Biochemistry profile, including serum hemoglobin *A1c* was measured on the day of operation. All patients were tele-monitored for 72 hours following operation for the occurrence of atrial fibrillation. The patients were then dichotomized at the hemoglobin *A1c* level of 8% and the frequency of atrial fibrillation, as well as demographic and clinical parameters were compared between the two groups.

**Results:** The mean age of the study population was 60.83±8.70 years. A total of 109 (15.3%) patients developed atrial fibrillation and in 274 (38.7%) patients hemoglobin *A1c* was below 8%. There was no significant difference between the two study groups regarding the frequency of atrial fibrillation ( $P=0.47$ ). There was no statistically significant association between the level of hemoglobin *A1c* and the occurrence of postoperative atrial fibrillation controlling for age, hypertension, duration of diabetes, serum creatinine, and left atrial size ( $P=0.50$ ). In the multivariable logistic regression model, age, hypertension, chronic obstructive pulmonary disease, serum creatinine, left atrial size, and full perfusion time were important predictors of atrial fibrillation.

**Conclusion:** In this study, the association between postoperative atrial fibrillation and the level of hemoglobin *A1c* was not statistically significant.

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## The quantitative analysis of diabetic foot pressure changes following a low level laser therapy: A case report from the biomechanical perspective

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**Background:** Changes in the biomechanics of the foot, resulting in pressure redistribution, are known risk factors for ulceration of the diabetic foot. The investigation of the biomechanics of the foot using the static and dynamic foot scan are informative in understanding how changes to the foot's structure, and the resultant alterations in gait, could be associated with the risk of ulceration in the diabetic foot.

**Methods:** Following clinical evaluation lower level laser therapy (helium-neon) was given on plantar and dorsum of the foot (Dosage Frequency: 20Hz, Duration: 6 mins, Mode: Scanning) for 10 sessions. Reevaluation of the biomechanical parameters (plantar pressure) was done using i-step plantar pressure analyser.

**Results:** Plantar pressure on the tarsal aspect was reduced compared to pre-laser treatment. The areas of high pressure showed a better pressure distribution pattern.

**Conclusion:** As a result of the concurrent action of behavioural and adaptive factors, people with diabetic neuropathy may develop rigid feet that are less adaptable to the floor, leading to high plantar pressures under heel and MTH. Limited joint mobility, especially at the ankle and at the first metatarsal joints, contributes to the onset of increased plantar pressures that could be associated with ulceration on repeated loading and micro-trauma. Low level laser therapy treatment helps to even this plantar pressure distribution to a greater extent by increasing blood supply and healing the plantar soft tissues.

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