

Need to Examine Postural Impairments in Diabetic Peripheral Neuropathy

Sir,

As we all know by the year 2020 about 250 million people will have diabetes; most of them will have type 2 diabetes mellitus.^[1] Physical inactivity, age, obesity, family history are the primary risk factors that has been identified as a major contributing factor to insulin resistance and relative secretory defect in pancreas.^[2] The most frequently occurring complication in type 2 diabetes is diabetic peripheral neuropathy (DPN) or distal symmetrical polyneuropathy. DPN affects up to 50–70% of the population with diabetes.^[3] It is clear that high glucose levels in the body changes the metabolism of nerve cells. This can result from the loss or damage to the sensory nerve fibers. The first problem is loss of the sensation for pain the second leading problem is postural impairments in this population.^[3] It is further stated in a study that the risk of mobility or postural impairments significantly increased by aging (6%/year), peripheral neuropathy (40% increase), stroke history (123% increase), and insulin treatment (117% increase).^[4] Hence, we can clearly observe that mobility or postural impairments considerably increase with DPN and insulin usage in diabetes. DPN is not only progressive in nature, but is also associated with pain, loss of protective sensation leading to increased probability of fall in elderly thereby limiting their mobility and activity. Moreover, cross-sectional data from the Third National Health and Nutrition Examination Survey, (US) indicate that among people age 60 years and older, women with diabetes are 1.6 times more likely to have fallen in the previous year and twice as likely to have fall-related injuries than women without diabetes.^[5]

India being the diabetic capital of the world, DPN is a common scenario in Indian population. As a result, individuals are affected with balance impairments. It is usually observed that due to our environmental context, barefoot walking, low awareness on foot care, structural changes of the foot it surges an individual's balance impairment in DPN in daily living. A contributing factor for this could be impaired postural stability due to loss or diminished sensation at the extremities or ankle. This may lead to a poor postural control with a higher risk of fall on even and uneven surfaces. A possible reason for it could be diminished peripheral sensations in diabetes that leads to decreased joint position sense resulting in increased excursion of center of mass in mediolateral (millimeters), anteroposterior direction (millimeters). An easy way to evaluate balance impairment is by static posturography [Figure 1], which is often considered as a pragmatic standard for quantifying balance impairments in

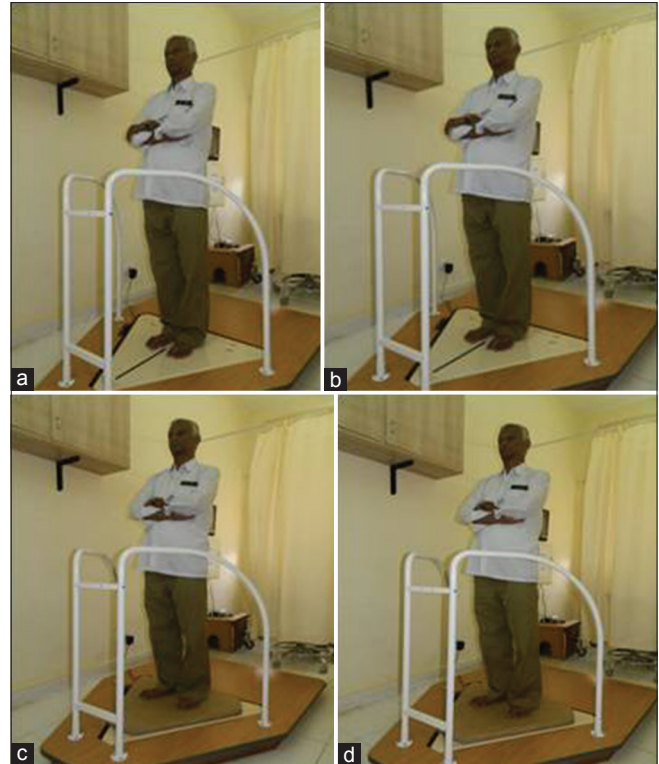


Figure 1: (a) Eyes open on posturography. (b) Eyes closed on posturography. (c) Eyes open on foam in posturography. (d) Eyes closed on foam in posturography

neuropathy. Posturography evaluate posture under four conditions eyes open on the firm surface, eyes closed on a firm surface, eyes open on foam and eyes closed on foam. Each condition has increasing task difficulty usually in which postural impairments aggravates in this population.

Hence, we see there is a clear need for the routine assessment of postural changes in diabetes in addition to the regular diabetic assessment, as risk of fall is surged in diabetes due to neuropathic changes, decreasing their functional independence and quality of life. Due to the triviality of the problem it should be mandatory to assess postural impairments either through clinical scales or posturography (*Metitur Good Balance System* [Metitur Ltd., Jyväskylä, Finland]) in an elderly population with DPN.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not

be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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