

Study Of Improvement in Small Fibre Neuropathy Using Diafoot Care Test in Patients with Controlled Diabetes Mellitus Who Presented to Dae Hospital

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ABSTRACT

This study is to observe the improvement of small fiber neuropathy using dia foot care testing in patients with controlled diabetes mellitus who presented to our institution (DEPARTMENT OF ATOMIC ENERGY HOSPITAL). Small fiber neuropathy is dangerous complication which can lead to foot ulcers, amputation and disability. The remission or cure of small fibre neuropathy is impossible so improvement can be attained with tight sugar control. So in this study we looked at the improvement of neuropathy in those whose hba1c levels and sugars well controlled and so early detection and management is important for the improvement of neuropathy symptoms in DM patients. Study methodology-This is a **retrospective** study done in our institution from **February 2023-february 2025** of **100** patients after obtaining ethical clearance and informed consent from all patients who had symptoms of numbness, pricking sensation burning sensation in feet with DM on medications. Results-In our study we found that **females <60 years are** more affected with neuropathy. **Hba1c > 7 was found in 32 females and 28 male patients.** Risk factors like dyslipidemia, obesity, hypertension, family history were present in both sex out of which **family history** scored more to neuropathy. **Hba1c levels(<7) with tight control of sugars with OHA and insulin after 2 years of treatment were found in 60 patients out of which neuropathy symptoms improved in 27 patients (2.7%) which is not significant as** in line with national and international studies. Conclusion-Diabetic neuropathy testing using DIAFOOT care testing device is important screening tool for the management of neuropathy symptoms to prevent complications like foot ulcers, amputations, neuropathic pain and disability.

Keyword: *small fiber neuropathy improvement ,diafoot care testing device, controlled diabetes mellitus patients.*

1. INTRODUCTION

In Diabetes Mellitus The Most Important Neuropathy Is Distal Symmetrical Neuropathy. Its Prevalence In India Is **10.8 Percent-32.2 Percent.** Small Fibre Neuropathy Is Dangerous Complication Which Can Lead To Foot Ulcers, Amputation And Disability. The Remission Or Cure Of Small Fiber Neuropathy Is Impossible So Improvement Can Be Attained With Tight Sugar Control. So In This Study We Looked At The Improvement Of Neuropathy In Those Whose Hba1c Levels Were Reduced And So Early Detection And Management Is Important For The Improvement Of Neuropathy Symptoms In Dm Patients. As Glycosylation End Products Cause Microvascular Damage Of Nerves Causing Neuropathy, The Duration Of Diabetes And Control Of Sugars Play An Important Role. Hence Annual Screening Of Dm Patients With Neuropathy Using Diafoot Care Testing Device Is Significant To Prevent Complications.

2. STUDY METHODOLOY

This Is A **Retrospective** Study Done In Our Institution From **February 2023-February 2025 Of 100 Patients** After Obtaining Ethical Clearance And Informed Consent From All Patients Who Had Symptoms Of Numbness, Pricking Sensation Burning Sensation In Feet With Dm On Medications

Risk Factors-Factors Taken Into Consideration For The Study Included Age, Sex,Duration Of Diabetes, Dyslipdemia, Family History,Obesity,Smoking,Hba1c Levels After Treatment For 2 Years With Lifestyle Measures, Oha And Insulin. Neuropathy Testing Was Done Using Diafoot Care Testing Device Which Tests For Neuropathy(Small Fiber, Autonomic),Vasculopathy And Podiascan And Results Are Given As Positive And Negative And Compared With Previous Tests For Improvement

Inclusion Criteria- In This Study We Included Male And Female Patients With Diabetes On Treatment With Symptoms Of Neuropathy Like Burning Sensation , Tingling ,Numbness Of Feet ,Giddiness And Compared With Previous Test

Exclusion Criteria-Patients Already Having Other Causes Of Neuropathy Like B12 Deficiency, Alcohol Induced, Autoimmune Conditions Like Rheumatoid Arthritis, Conditions Like Leprosy, Intake Of Chemotherapeutic Drugs, Old

Debilitated Patients Were Excluded

3. RESULTS

In Our Study We Found That **Females <60 Years Are More Affected With Neuropathy** .Hba1c > 7 Was **Found In 32 Females And 28 Male Patients**. Risk Factors Like Dyslipidemia, Obesity, Hypertension, Family History Were Present In Both Sex Out Of Which **Family History** Scored More To Neuropathy. Hba1c Levels(<7) With Tight Control Of Sugars With Oha And Insulin After 2 Years Of Treatment Were Found In **60 Patients Out Of Which Neuropathy Symptoms Improved In 27 Patients (2.7%) Which Is Not Significant As In Line With National And International Studies**

Table 1 prevalence of neuropathy according to sex

Male	Female
48	52

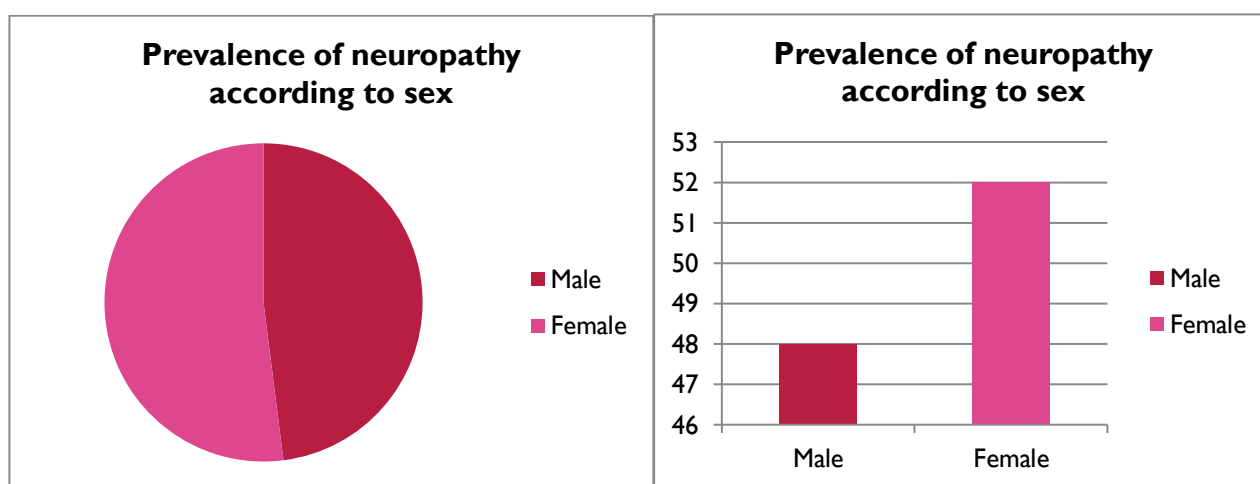


Table 2 Prevalence of neuropathy according to age

<60 yrs	>60 yrs
51	49

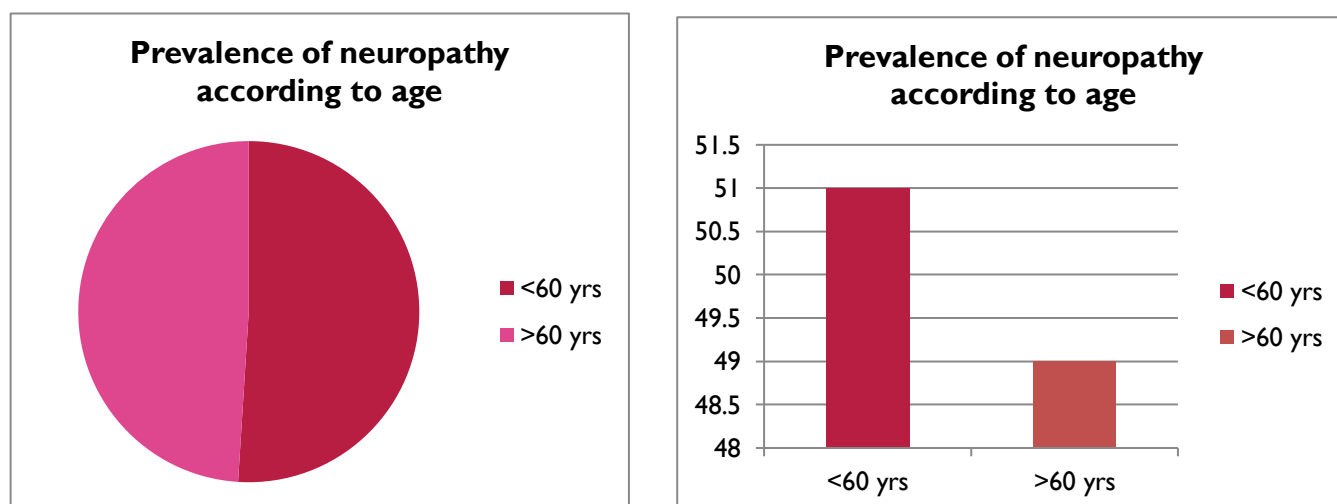


Table 3-HbA1c levels according to sex

HbA1c levels	Male	Female
<7	28	52
>7	20	20

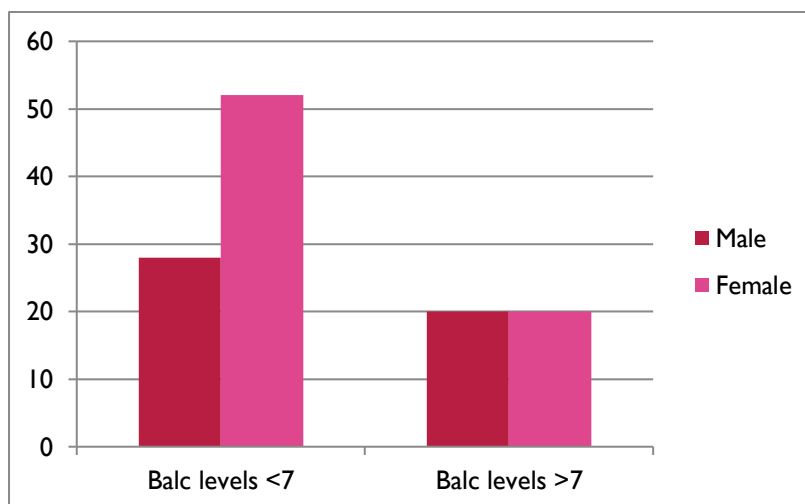
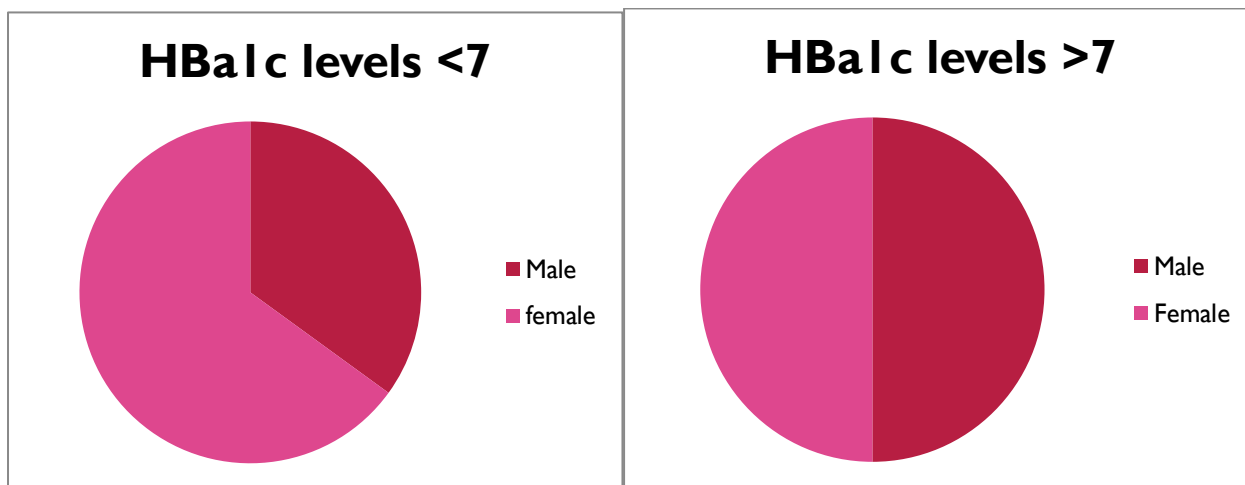
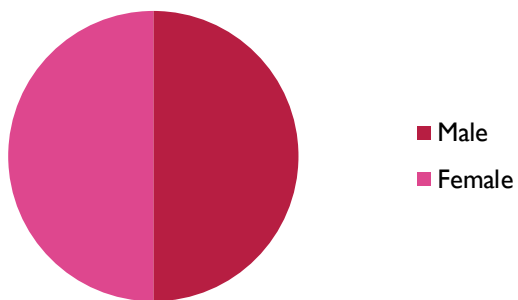


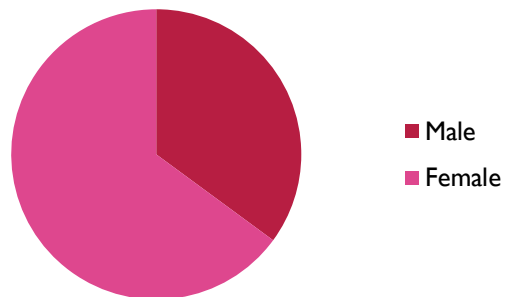
Table 4 - Risk factors according to sex

Risk factors	Male	Female
DM only	10	10
dyslipidemia	2	3
hypertension	9	9
Family history present	20	37

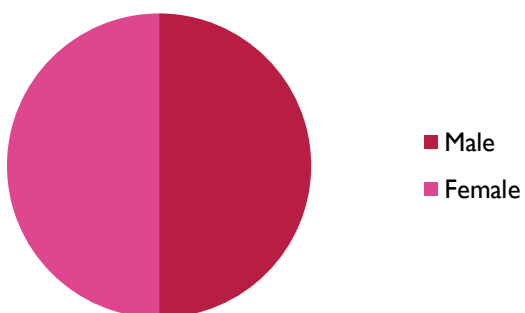
Hypertension



Family history present



DM only



dyslipidemia

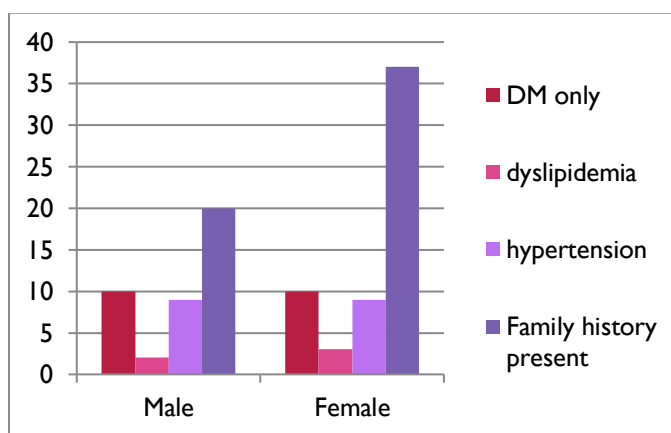
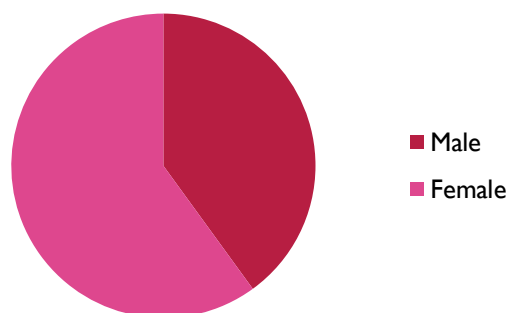
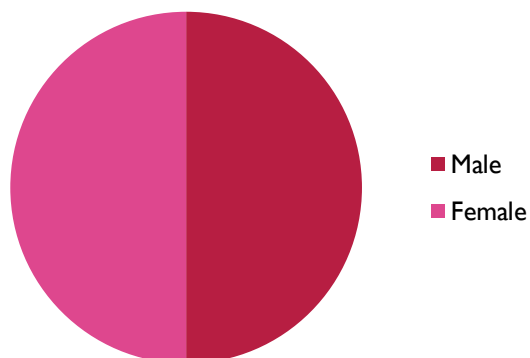


Table 5 - HbA1c levels according to sex and treatment

HbA1c (<7)and treatment	Male	Female
Insulin and OHA-HbA1c<7	28	32
Lifestyle ,OHA- HbA1c>7	20	20

Lifestyle oha Hba1c>7



Insulin and oHa Hba1c<7

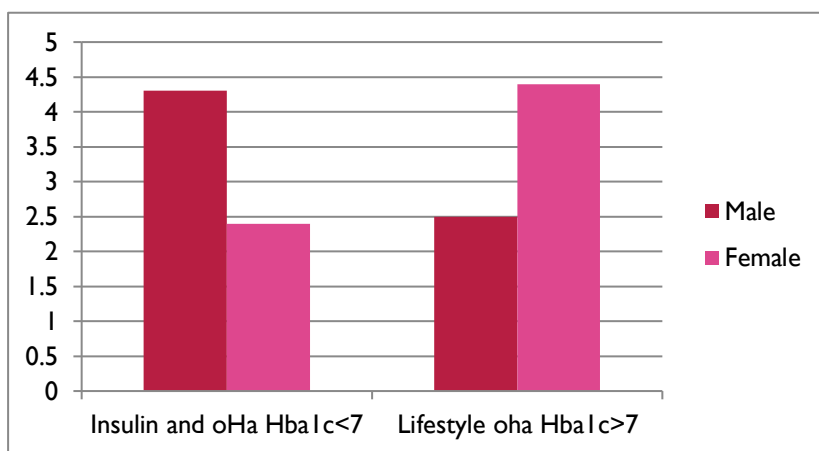
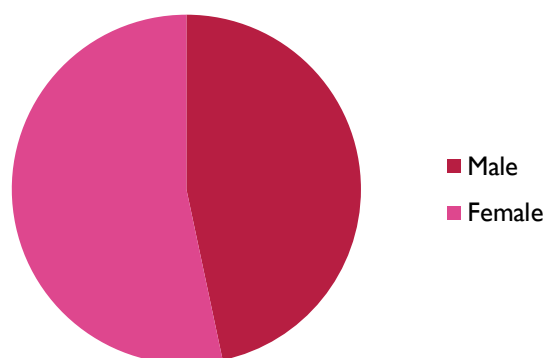
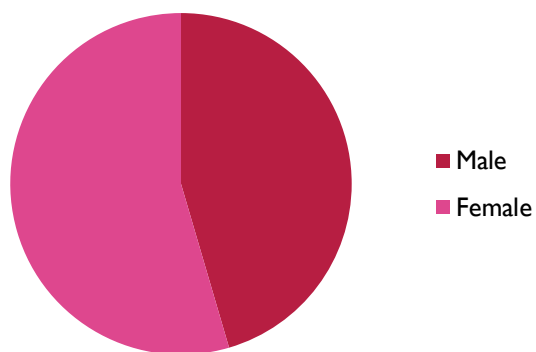


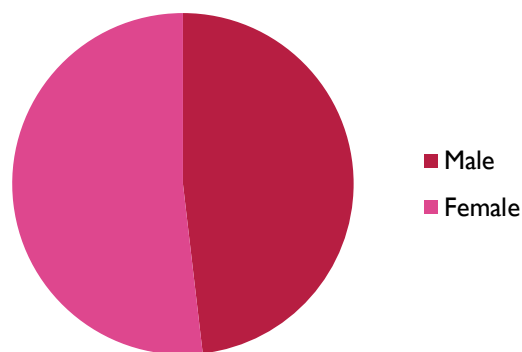
Table6 - Improvement of neuropathy with tight control of sugars according to sex

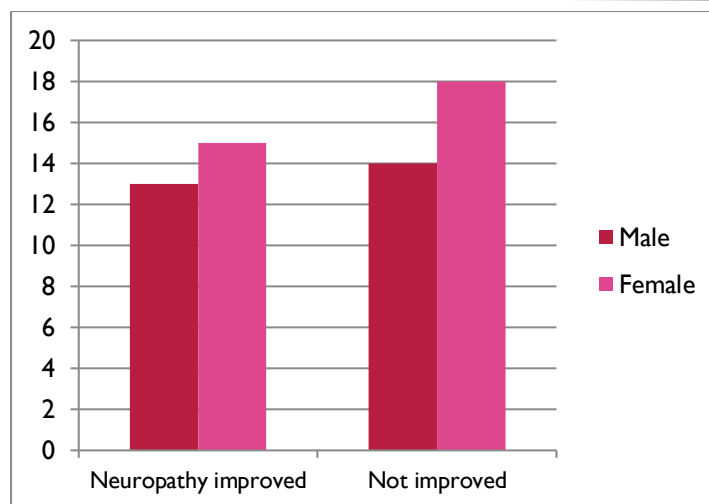
Tight DM control Hba1c <7 after 2 yrs	Male	Female
Neuropathy improved	13	14
Not improved	15	18

Not improved



Neuropathy improved





Comparison with national study –In our study it was found that **females had more prevalence of neuropathy in line with national study .But the younger age group people are affected <60 years** which is more dangerous which is **not in line with national study**. The risk factor preponderance were distributed in both sexes but **family history** superseded .The improvement of neuropathy symptoms after 2 years of treatment **with H ba1c of <7 with insulin.oha and life style measures** were also distributed in both sexes but they were **significantly low(27 out of 60)** which is in line with national study

Comparison with international study- As with the international study the **females were affected with neuropathy but the younger age group were found to be affected in our study which is not in line with international study also**.The improvement of neuropathy symptoms after 2 years of treatment with **hba1c of <7** were distributed in both sexes but **significantly low (only 1/3) .which is in line with international study**

4. LIMITATIONS

Many patients with arthritis, fragile patients, neuropathy caused by drugs were excluded in diafoot care testing device .So it was used as a tool of functional assessment and confirmatory tests like NCS, impedance studies also has to be carried out for confirmation and management

5. CONCLUSION

Diabetic neuropathy testing using DIAFOOT care testing device is important screening tool for the management of neuropathy symptoms to prevent complications like foot ulcers, amputations, neuropathic pain and disability

Implications to community-Our study of improvement of neuropathy symptoms after tight control of sugars after 2 years of treatment using DIAFOOT care testing device is a reliable screening tool and sensitive which is noninvasive to prevent further complications like ulcer, amputations and disability. Hence early screening and annual screening of foot for neuropathy in DM patients is very significant for early management

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