

ABSTRACT

PREVALENCE OF VITAMIN B12 DEFICIENCY IN PATIENTS WITH TYPE 2 DIABETES MELLITUS ON METFORMIN

Dr.M.Sathyarangan,Dr.M.Natarjan,Dr.P.S.Arulrajamurugan,Dr.B.Palanikumar

DEPARTMENT OF GENERAL MEDICINE, MADURAI MEDICAL
COLLEGE, MADURAI

BACKGROUND-

Diabetic patients are more prone to develop neuropathy Prolonged vitamin B12 deficiency may result in neuropathy, ranging from paraesthesia and decreased peripheral sensation to altered mental status ,subacute combined degeneration of the spinal cord and dementia. Therefore ,it is worthwhile to consider the prevalence of vitaminB12 deficiency among the type 2 DM population.

AIMS AND OBJECTIVES:-

Determine the prevalence of vitamin B12 deficiency in patients with T2DM not on metformin and with no history of or treatment for autoimmune diseases.Determine the prevalence of vitamin B12 deficiency in patients with T2DM on metformin and if the presence of vitamin B12 deficiency correlates with dose and duration of metformin therapy.Determine if metformin induced vitamin B12 deficiency is

associated with anemia as measured by Hb and MCV or peripheral neuropathy as measured by the absence of sensation to 10g monofilament. This would inform the need for routine annual vitamin B12 measurements in T2DM on metformin.

METHODS:-

Setting: Department of Diabetology & Medicine, Govt Rajaji

Hospital, Madurai Medical College, Madurai. Inclusion criteria:

Study group : Type 2 diabetic on metformin for more than 18 months

- Control Group : Type 2 diabetic not on metformin for more than 18 months
- Exclusion criteria: Parenteral Vitamin B12 supplementation, malabsorption (coeliac disease, inflammatory bowel disease, gastro intestinal surgery) malnutrition (pure veg, anorexia nervosa), chronic alcoholism,

DESIGN OF STUDY: Prospective analytical study. PERIOD

OF STUDY: 6 Months PARTICIPANTS: Patients with diabetes

mellitus diagnosed according to World Health Organization (WHO)

criteria and onset of diabetes after 30 years and duration more than or equal to 5 years, in General Medicine wards or attending Diabetology

OPD of Government Rajaji Hospital, Madurai from February 2016 to July

2016. The study will be conducted on 100 patients from General

Medicine ward and diabetology OPD of Government Rajaji Hospital

Madurai ,in whom serum B12 assay by ELISA method will be done
Hundred healthy controls will be selected randomly from bystanders
attending the hospital. Significant medical illness will be ruled out by
history, physical examination, and investigations.Comparisons among
various groups and controls would be made by statistical tests

RESULTS :

In those patients taking metformin-Hb value mean was found to be
11.9; And in those taking OHA taking other than metformin, mean Hb
found to be 13.58; found to be statistically significant. In those
patients taking metformin ,neurological deficits seen in 15 persons
and other OHA – one person presented with neurological deficit; -
statistically significant.In those patients taking metformin for less than
1 year B12 level- 476.154.In those taking metformin for morethan 1
year B12 level-338.649Thus found to be statistically
significant.Duration and dose of metformin and other OHAs also
plays a significant role. Therefore, there is a significant prevalence of
Vitamin B12 deficiency in Type 2 diabetic patients on Metformin
therapy_which showed a_positive correlation to the dose & duration of
therapy since Diabetic patients are more prone to develop
neuropathy,Prolonged vitamin B12 deficiency may result in
neuropathy

.CONCLUSION

In this study we come to a conclusion that there is a statistical significant prevalence of Vitamin B12 in Type 2 diabetic patients on Metformin therapy which showed a positive correlation to the dose & duration of therapy since Diabetic patients are more prone to develop neuropathy, Prolonged vitamin B12 deficiency may result in neuropathy, ranging from paraesthesia and decreased peripheral sensation to altered mental status, subacute combined degeneration of the spinal cord and dementia, hence Periodic monitoring of serum B12 values in these patients is warranted to avoid serious neurological problems

Key Words : Metformin, Vit.B12, Peripheral neuropathy