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Comparative study of MCV between lacto vegetarian and non-vegetarian population of Tharparkar village

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Anemia is one of the most common micronutrient deficiencies in our community. This study aimed to compare the MCV of lacto vegetarian and non-vegetarian adult living in Tharparkar-Sindh village. Mean corpuscular volume is the average volume of red cells. In specimen, MCV is elevated or decreased in accordance with average red cell size i.e. normal MCV indicate normocytic low in indicating microcytic and high indicate macrocytic and use as the morphological basis of anemia. The reference range for MCV is 80-95 fl in the adult. MCV largely depend upon these micronutrients like B12, folic acid, and iron present in the diet. Deficiency of this micronutrient effect, MCV and can cause anemia.

Study Design: Case-control analytical descriptive study

Methods: One hundred apparently healthy strict lactovegetarian and one hundred non-vegetarians were selected from the same village of Tharparkar. After written consent and preliminary physical examination, blood samples were collected under sterilized condition in two tubes one containing EDTA for CBC and second for serum for B12 and folate which was centrifuge there and were properly sealed and labeled and placed in ice boxes, also peripheral smear was made at the research field site and fixed with 70% methanol to the cellular morphology may not be altered and then was transported immediately to DUHS lab Ojha campus Karachi where samples were analyzed for complete blood count, serum B12 and folate. For CBC serum B12 and folate level was rechecked, the peripheral blood smear was stained with Leishman stain by principal investigator himself and cellular morphology was reported by using microscopy.

Results: The mean age in the vegetarian group was 30.5years (± 8.36) and 30.13(± 9.22) in non-vegetarians group. Male to female ratio was 3.4:1. On direct questioning 54 in vegetarian and 24 in non-vegetarian agreed to have fatigability and lethargy. Most of the subject in both group in diet relied on wheat, pulses, vegetable and milk product as the staple food and non-vegetarian often eat an egg and meat. In vegetarian group 83% and in non-vegetarian 66% B12 deficient, while 7%in vegetarian and 23 %in non-vegetarian had low folate level. 9 people in vegetarian 22 peoples in non-vegetarian found anemic. Definite high MCV i.e. more than 100 was found 20 in vegetarian and 04 in non-vegetarian.

Conclusion: Majority of the vegetarians and more than half of non-vegetarian had vitamin B12 deficiency while folate level was normal in most of the subject of the two groups. MCV is the poor indicator of the severity of B12 and folate deficiency anemia, and normal MCV does not exclude B12 or folate deficiency. The clinician needs to be aware of the low sensitivity of the MCV as the screen.