

CALCIUM INTAKE RELATIONSHIP TO HABITAT DURING PREGNANCY IN DIFFERENT ZONES OF RAJASTHAN

Dr. Smita Kulshreshtha*

ABSTRACT

During pregnancy absorption of dietary calcium increases, so no extra intake is necessary if a woman eats a balanced diet. Rudnieki et al (1991) suggested that if the dietary consumption is adequate to cover the calcium requirements, extra calcium should only be recommended for pregnant women with limited consumption of milk and milk products. However pregnant women should avoid excessive intake of tea, coffee, salt, which either inhibit calcium absorption or promote its excretion. Oxalic acid containing foods such as spinach can also prevent the absorption of calcium. The joint F.A.O./W.H.O. expert group on 'Calcium requirement (1962) excepted evidence that about 30 gm of calcium is deposited in foetus during pregnancy. I.C.M.R. nutrition expert group recommended an extra allowance of 500-600 mg of calcium to meet the needs of the third trimester of pregnancy. Since a developing baby depends on his mother's diet for all of his nutritional needs, the expectant mother must eat a nourishing diet to support healthy growth and development of her baby. Calcium is one of several essential nutritional requirements during pregnancy for the adequate bone and teeth development. Habitat (Rural or Urban) also influences the diet of pregnant women. Therefore the present study discusses the intake of calcium by pregnant women and consequences of calcium deficiency on mother and neonate. The sample comprised of 100 pregnant women each from all five zones (Arawalli, Mewar, Dry-Land, Desert and Eastern-Hills) of Rajasthan. The data was collected through questionnaire and interviews were also conducted regarding the daily diet taken by pregnant women. Results indicated that the Calcium intake was directly related to habitat of pregnant women. Women who consumed the recommended amount of calcium during pregnancy had healthier babies than those whom did not consume and also they suffered from various health issues during pregnancy such as osteomalacia, weakness etc. Further recommendations were given to increase calcium intake through locally available food and diet plan was suggested to pregnant women.

Keywords: Pregnancy, Calcium, Neonate, Dry-Land, Desert, Eastern-Hills.

Introduction

The body of an adult normally contains about 1200 gram of calcium at least 99% of this amount is present in the skeleton and the remaining one percent in the soft tissues which place and important role in the body both in cell structure and function as well as in the blood, where it helps in clotting, it regulates the Permeability of capillary walls as well as the excitability of nerve fibers and centers. It is essential for the contraction of the heart and muscle. The parathyroid acts directly on the bone releasing calcium from it and does raising the plasma calcium level it also increases the excretion of phosphate by the kidney. Vitamin D helps the absorption of calcium from the intestine the normal blood level of calcium ranges from 9 to 11 mg / 100 ml.

Methodology

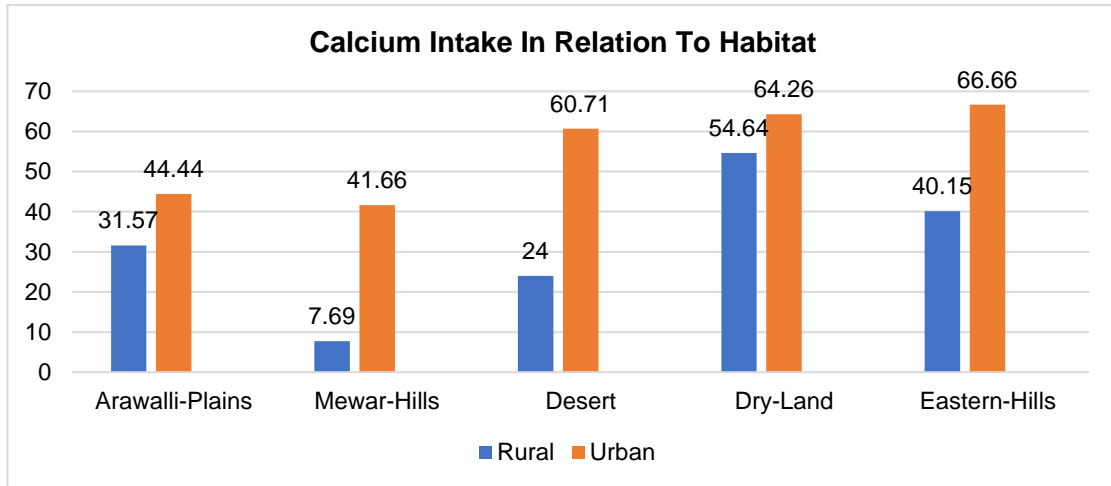
The present study discusses the intake of calcium by pregnant women and consequences of calcium deficiency on mother and neonate. The sample comprised of 100 pregnant women each from all five zones (Arawalli, Mewar, Dry-Land, Desert and Eastern-Hills) of Rajasthan. The data was collected through questionnaire and interviews were also conducted regarding the daily diet taken by pregnant women.

* Apex University, Jaipur, Rajasthan, India.

Observations

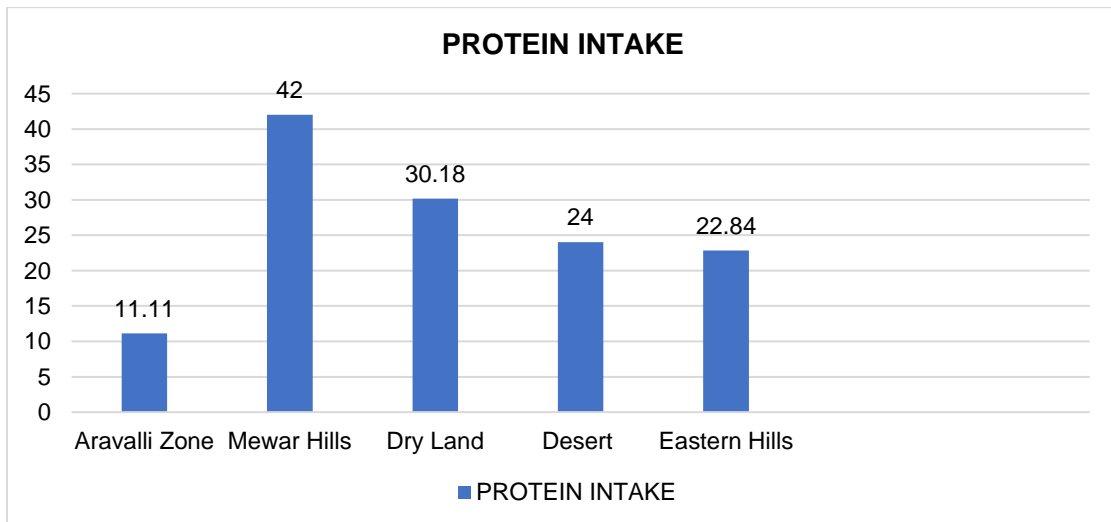
Habitat (Rural or Urban) also influences the diet of pregnant women. It was found that in all the eco-geographical zones of Rajasthan the percentage of women taking recommended amount of calcium (1gm./day) was higher in urban women in comparison to those rural women. It was observed that urban women were consuming protein and calcium rich diets like milk, cheese, eggs, curd, dry fruits etc.

In urban area the women taking normal amount of calcium was 44.44, in Mewar-Hills 41.66, in Desert 60.71, in Dry-land 64.28 but in Eastern-Hills this percentage was highest (66.66) since they were more educated and aware about their diet. In rural area this percentage was 31.57 in Arawalli-Plains, 24 in Desert, 54.64 in Dry-Land, 48.15 in Eastern-Hills this percentage was lowest in Mewar-hills (41.66) because they were not consuming calcium and protein and citric acid rich food.



Graph showing the percentage of normal calcium intake in relation to habitat in various zones of Rajasthan

Recording protein intake in the various eco geographical zones of the state as shown in graph, it was found that Women in Arawali zone were taking 11.11% ,in Mewar-Hills 42% ,in Dry Land 30.18% ,In Desert 24% and in Dry Land 22.84% women of the Mewar hills were taking the higher percentage of protein this was particularly because the women there were consuming large amount of pulses on the contrary the percentage of women taking normal amount of protein was least in Arawalli zone specially the percentage of rural women .



Graph showing the percentage of normal protein intake in various zones of Rajasthan

Proteins are complex nitrogenous compounds made up of simple units known as amino acids which later are characterized by the presence of carboxyl group and an amino group attached to the same carbon atom the amino acids are linked together in a molecule of protein by peptide bonds by hydrolysis proteins can be broken down into the monomer units the amino acids proteins are essential constituents of protoplasm they form an important component of muscle and other tissues and vital body fluids like blood, protein are obtained from the daily diet we consume and the amino acids released after their digestion are absorbed in the system proteins are utilized for the growth of infant and children and for the repair and tear of tissue in.

Proteins also form part of a few other important functions in the body including production of enzymes hormones and antibodies to defend the body against infection, proteins also produce energy in the body in a balanced diet.

The absorption and retention of calcium depends on calcium intake and the substances assisting absorption are vitamin D, high protein diet and citric acid.

Although in all the eco geographical zones of the state the intake of Vitamin C by pregnant women was to be quite satisfactory however in the Aravali Planes the intake was found to have been comparatively less this was particularly so as the women survey their was not consuming fruits like orange Amla guava etc which are rich sources of Vitamin C. Ascorbic acid is obtained mainly from the vegetable and fruit grow all such as food such as Orange lemon grapefruit Amla guava pineapple and strawberries are excellent sources green leafy vegetables fresh vegetables like green chillies turnet germinated pulses and potatoes are also good source unlike most animals people are unable to produce their own Vitamin C from glucose and Sony regular intake from food Vitamin C is one of the unstable vitamins easy destroyed by oxidation exposure to high temperature and light.

The normal adult mean requirement is 40 and it could be provided by a small orange or a large peach can fulfill a smokers daily requirements for vitamin C r at least twice as high as long smoker need at&t a day or molar medium size for that or supplies i was smarter of non-smoking adults daily requirement that i see mr nutrition episode groups of the opinion that the allowances of 50 and jupiter normal woman would meet the additional requirement of lebanon.

Several months of dietary deprivation mein result in the deficiency of Vitamin C known as scurvy it causes loss of teeth due to disease to gums who are going healing weekend bones and mental confusion it also helps to absor calcium for bone formation etc excreted in the urine.

Over doses may also cause headache and sleep disturbance says and as such should not be taken by pregnant women.

So, it is seen that the women of eastern hills were taking more vitamin C than Other zones, these women's were not having any calcium deficiency symptoms then women of other zones so it is found that these females were not taken care of its property like and stability in heat which also affected the absorption of calcium and they were having some symptoms of calcium deficiency.

Substances which interfere in the absorption and retention of calcium are phosphate and phytic acid, faulty absorption of fat, Oxalic acid and fibre. The normal intake of calcium, the retention varies from 10 to30 %depending on diet and age of the subject(Nandy and Chakravorty,1982).

In the study was found that 40% pregnant women who were taking more than 67 cups of the daily exhibited one or other symptoms such as sweating rapid breathing and sleeplessness at sastra our symptoms were not seen in other women since they were he toddler. So, access of tea in any case it is harmful for even absorption of calcium so further studies can be done.

All plant food and their products contain some fibre such as cellulose, pectins and gums that make up their cell walls which is not digested but nevertheless plays i number of important role in the body food cycle the average daily intake of fibre by pregnant woman should be about 20 grams in the present study only 32.81% remember taking required amount of fibres there is rest of the women the taking last amount of fibre.

The persons of women taking normal amount of fibre was highest in mewad hills followed by desert and dry length and the eastern hills it was least in the Aravali planes. So in the present study we couldn't found any negative impact on calcium absorption.

In rural areas of the Dry-Land(54.64) the highest percentage of women was found taking normal calcium, Since these women were taking large amount of cows milk and butter milk etc In a dietary survey Chadha et al.(1995) reported that the rural group of Delhi and Gurgaon showed higher

intake of calcium and iron than the urban population. this percentage was lowest in the Mewar-Hills(Kulshreshtha,2000) .In rural areas the preparations were having more milk products, fresh fruits and vegetables while in urban area more preserved and fast food was consumed by the pregnant women.

In Rajasthan women only a few cases of osteomalacia and osteoporosis were found. It was observed that women who took normal amount of calcium and protein both did not exhibit symptoms of calcium deficiency. On the other hand, women who took normal amount of calcium but below normal protein were found to be calcium deficient since protein helps in the absorption of calcium. Thus, it was found that in women who were taking normal amount of calcium along with normal amount of protein did not exhibit symptoms of calcium deficiency. Whereas in women taking normal amount of calcium but below normal protein, they did exhibit symptoms of calcium deficiency. (Kulshreshtha,2000). Potential interaction of calcium and protein with bone. There are several reasons to believe that the calcium intake may influence the net effect of protein on the skeleton. Higher calcium intake results in more absorbed calcium, which may help offset the urine losses induced by dietary protein.

This shows that when a high-protein diet is combined with high calcium intake, calcium absorption is increased and bones stay stronger.

Protein and calcium are major components of bone tissue and also play an active role in bone metabolism. The protective effect of dietary calcium against osteoporosis is well established. In contrast, the relevance of protein intake remains controversial in this context. Numerous studies have shown a positive association between dietary protein intake and urinary excretion of calcium and a link between a high protein intake and a greater risk of fracture has also been demonstrated.

Conclusion

It is found that Habitat has also influences on the diet of pregnant women. In all the eco-geographical zones of Rajasthan the percentage of women taking recommended amount of calcium was higher in urban women in comparison to those rural women.

The percentage of women with higher intake of protein was higher in the Mewar hills were taking the higher percentage of protein this was particularly because the women there were consuming large amount of pulses and were having no symptoms of calcium deficiency such as joint pain, pelvic pain or leg cramps etc. on the contrary the percentage of women taking normal amount of protein was least in Arawalli zone specially the percentage of rural women were having suffering with the above problems.

Recommendations

The World Health Organization (WHO) and the Food and Agriculture Organization (FAO) of the United Nations recommend a dietary intake of 1200 mg/day of calcium for pregnant women and 1000 mg/day for non-pregnant adults (19–50 years old).

- Excellent sources of calcium are Seeds- are tiny nutritional powerhouses, and many are high in calcium, including poppy, sesame, celery, and chia seeds.
- Cheese, Yogurt, Sardines and canned salmon, Beans and lentils, Almonds, Whey protein and Leafy greens should be taken in the diet.

Calcium is vital for making your baby's bones and teeth. Sources of calcium include: milk, cheese and yoghurt. green leafy vegetables, such as rocket, watercress or curly kale.

Pregnant women can meet their protein needs through food. Protein-rich food sources include meat, poultry, fish, bone broth, beans, nuts, seeds, and Greek yogurt. Protein powders can be a great way to supplement a pregnant woman's diet with the permission of doctor.

During pregnancy women need to take a balanced diet with folic acid, iron, calcium, vitamin D, choline, omega-3 fatty acids, B vitamins, and vitamin C in recommended amounts.

- Physically she should stay active and happy.

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