Original Article

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URINARY EXCRETION OF ZINC AFTER TAKING LONG TERM USE OF HORMONAL CONTRACEPTIVES

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Abstract:

The study was designed to measure urinary excretion of zinc after taking-hormonal contraceptives (oral, Injectable and Norplant) for long time (5 years or more). In this case control study 10 apparently healthy women not taking any hormonal contraceptives, non-pregnant and 30 women age ranged from 17 to 38 years were selected. Urinary zinc were measured by atomic absorption spectrophotometer.The mean urinary excretion of zinc in women using hormonal contraceptives for 5 years or more were almost similar to that of control.

Key Words: Hormonal contraceptives, serum zinc, atomic absorption, spectrophotomet.

Introduction;

In recent years much interest has been grown on trace elements as, (zinc) with the use of hormonal contraceptives. Alteration of zinc level in women using hormonal contraceptives occur, both in combined oestrogen and progesteron or only progesteron preperation[1].

Oral pills are simple and effective contraceptives agents used by women[2]. Depots of progesterone alone are also acceptable contraceptives and widely used by underprivileged communities in some parts of the world[3]. Levonorgestrel (progesterone) a subdermal implant (Norplant), bas also been used as a long-term contraceptive agent to maintain almost constant level of the drugs for several years[4]. All these hormonal contraceptives containing synthetic oestrogen and progesteron cause biochemical and metabolic bazards, when used for long duration[5]. So, the study was conducted to assess the status of urinary excretion of zinc after consuming long-term hormonal contraceptives.

Materials and Methods:

The study was conducted in the Department of Physiology, IPGMR, in co-operation with Atomic Energy Commission, Dhaka. A total of 46 healthy female subject were included in the study. Out of them 10 women were control and 30 using hormonal contraceptives for 5 years or more. Their urinary zinc concentration was estimated by Atomic absorption spectrophotometer. Contraceptive(OC) users were subdivided into B2, C2 and D2 depend on the type of OC used for five years or more. Atomic absorption spectrophotometer: The atomic absorption spectrophotometry is newer method for the detarmination of metallic elements in low concentrations. In atomic absorption spectrophotometry, one measures the absorption of light (or radiation) by the greatly preponderant unexcited atoms of the element in question in the sample to be analyzed. The light of absorption is obtained from a hollow cathode lamp. The lamp incorporates a tubular cathode made of, or with the element to be determined and is filled with an inert gas, such as neon. Separate lamp is recurred for each element being determined, although some multi-element lamps, that is calcium magnesium and copper-iron-zinc are also available.

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Results:

Statistical Analysis of urinary excretion of zinc done by unpaired student's 't' test.Urinary excretion of zinc were almost similar in all the groups:

Group	df	Urinary excretion of zinc
Control VS B_2	18	0.79NS
Control VS C_2	18	0.68NS
Control VS D_2	18	0.46NS

NS = Not Significant
df = Degree of freedom
B2 = Oral contraceptives users (5 years. or more)
C2 = Injectable contraceptives users 5years. or more.
D2 = Norplant users (5 years. or more)

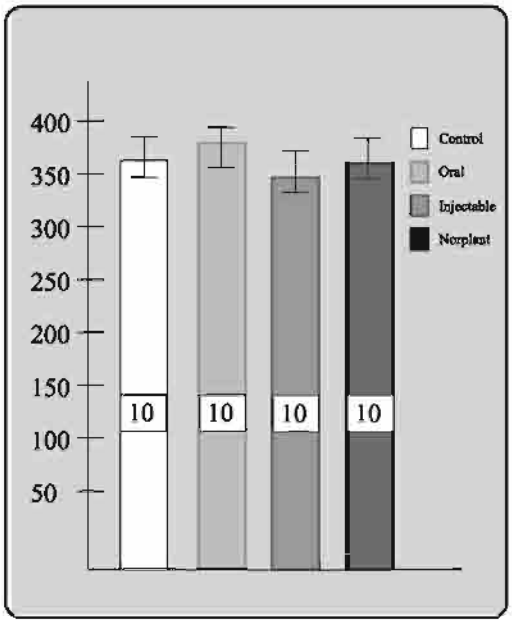

Figure in Parenthesis indecates total number of subject, vertical lines indicate standard errors.

Discussion:

In my study urinary zinc excretion in healthy women using hormonal contraceptive compared with those of control. The mean urinary excretion of zinc using hormonal contraceptives for 5 years. or more were almost similar to that of control. Similar observation seen studies done by carruthers et al and prema et al carruthers et al) also suggested that zinc firmly bound to protein which prevent excretion in urine[6,7]. Present results are also consistent with the above suggestions and normal urinary excretion of zinc due to binding with plasma protein. So, urinary zinc measurement in long term hormonal contraceptives users is not helpful for diagnostic purpose.Further study with the measuremnt of serum Zinc and urinary excreation of Zinc is recommended.

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