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INDIAN JOURNAL OF OBSTETRICS AND GYNECOLOGY

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Content

Advances in Obstetrics and Gynaecology

Editorial

Advances in obstetrics and gynaecology are occurring at terrific speed. Continuous updating of knowledge is imperative for us to give best to our patients. Medical journal plays an important role in it. I am delighted and indeed feel honored to bring out this first issue of Indian Journal of Obstetrics and Gynaecology.

In this issue we have a review on fertility preservation in gynaecological malignancy by Dr. Alka Patil. Evolution of successful treatment, resulting in extended survival, has brought a focus on concept of fertility preservation. Fertility preservation should be an integral part of the treatment planning. Author has described various types of fertility preserving surgical procedures pertaining to different gynaecologic malignancies. Other options include oocyte malnutrition embryo-cryopreservation etc. Many treatments are experimental and there are enormous ethical dilemmas.

Despite numerous tests have been incorporated in diagnostic evaluation of preterm labour (PTL), incidence of PTL is not changed and prevention of PTL remains elusive. Prophylactic therapies have conflicting results. Dr. Pralhad Kushatgi has conducted a study on a new method for assessing fetal maturity by clotting time with amniotic fluid.

Polycystic ovary syndrome (PCOS) is a common problem in female and exerts its effect throughout woman's lifetime. It substantially contribute to infertility. Dr. Garima Kachchawa provides a comprehensive update on various options in stepwise approach to treat infertile PCOS cases.

In the not very distant past pregnant women were precluded from engaging in physical activities because of fear of potential complications. It is now well established that exercise during pregnancy provides substantial benefit and regular exercises should be encouraged for all pregnant women but physical performance should be done under medical supervision. No guideline can cover all conceivable situations. Intensity, duration and type of exercises have to be adopted according to various medical situations. All practicing obstetricians must be cognizant about exercises program during pregnancy. Dr. Sonia Kaundal (PT) and Dr. Pooja Thakur (PT) have compiled the most recent and pertinent information on exercise during pregnancy.

There are case reports on sirenomelia and unusual presentation of cervical fibroid. Sirenomelia, which is very rare anomaly was detected in fetus where women conceived after exposure to levonorgestrel emergency contraceptive. There is no report of such adverse outcome. This case report generates the interest in potential teratogenic risk after levonorgestrel exposure.

I express my gratitude to all the contributors. Last but not the least I would like to thank readers of this journal and solicit their contributions. I welcome the suggestions from all of you to improve the quality of journal.

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A Prospective Study: On Clinical Profile and Outcome of Malaria in Pregnancy at Tertiary Care Centre in North-Western Maharashtra

Dilip R. Patil*, Naresh S. Vidhate**

Abstract

Introduction: Malaria during pregnancy is a recognised risk factor for maternal and fetal complications and it is endemic in certain areas of our country. Pregnancy also enhances the severity of malaria particularly with P falciparum infestation. Malaria in pregnancy is a complex phenomenon and malaria epidemiology is rapidly changing, additional evidence is still required to understand how best to control malaria. Material and Methods: This is a prospective observational study conducted in the department of medicine of A.C.P.M. Medical College during the period from July 2009 to Feb 2014. Twenty seven pregnant women with sub types of malaria in pregnancy were studied. The maternal complications and outcome of pregnancy was studied. Observation: A total of 27 pregnant women patients with plasmodium falciparum, vivax and mixed malaria with age group 15 to 45 years (mean 26.29) There was statistically significant increase in the incidence of anemia(mean Hb 6.4gm%), thrombocytopenia(mean platelet count 65700/cmm), mean leucocyte count 9129 and mean random blood sugar 60.7mg/dl, high grade fever, headache, jaundice, altered sensorium observed in plasmodium falciparum infection during pregnancy. There was also increased 11.11% renal and hepatic failure, and 7.4% intrauterine fetal deaths in plasmodium falciparum malaria. Conclusion: Plasmodium falciparum malaria is more severe and life threatening in pregnant females as compared to plasmodium vivax, it was found in our study that either primigravida or multigravida. Plasmodium falciparum type of malaria causes more illness with higher incidence of complications, multiorgan involvement and supposedly bad prognosis.

Keywords: P.falciparum; P.vivax; Clinical profile; Anemia.

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Introduction

Malaria imposes great socio-economic burden on humanity. It afflicts 90 countries and territories in the tropical and subtropical regions. It affects all ages but pregnant women and children are at high risk because of low immunity. India contributes about 76 % of total malaria cases in South East Asia Region. Malaria is a disease of global importance that results in 300-660 million cases annually and an estimated 2.2 billion people at risk of infection. Approximately 2.5 million malaria cases are reported annually from South Asia, of which 76% are reported in India.[1,4,5] Over 50 million women are exposed to the risk of malaria in pregnancy every year. Pregnancy associated malaria results in substantial maternal and especially fetal and

neonatal morbidity, causing 75000 to 200 000 infant deaths every year.[2] Malaria is endemic throughout India with 95% of the population at risk of infection.[3]

Four species of malaria parasite that infect human beings (Plasmodium falciparum, P vivax, P malariae, and P ovale), P falciparum is the most studied. P vivax is prevalent in Asia and South America, and may be more common in these areas than P falciparum. In pregnancy, only the harmful effects of infection with P falciparum have been recognised. Maternal mortality associated with P falciparum malaria is highest in areas of low and unstable transmission or in epidemics.

Primigravida, in particular, and secondgravida women are at higher risk for placental malaria than women with multiple prior pregnancies.[6,7] The pregnant women experience more mosquito bites as compared to non-pregnant women, which may be due to increased body surface and specific odors secretions during pregnancy. Pregnant women are highly susceptible to malaria as compared to the adults, and both frequency and severity of disease are higher in pregnant women due to depressed cellular immunity during pregnancy.[8]

Placental malaria is usually more frequent and more severe in primigravida as they lack antibodies that inhibit infected erythrocytes binding to chondroitin- sulphate A. Sequestration of infected erythrocytes in intervillous spaces leads to monocytic inflammatory infiltration in the placenta.

Generally, placental malaria was associated with increased risk of maternal anemia, HIV infection, and maternal mortality, with younger women and primigravida more likely to be affected.[9] A variety of adverse perinatal outcomes, including low birth weight, preterm delivery, intrauterine growth retardation, reduced fetal anthropometric parameters, fetal anemia, congenital malaria, increased mother-to-child HIV transmission, and perinatal mortality, were associated with placental malaria.[9]

Anemia tends to occur between 16-29 weeks - due to haemolysis of parasitized cells and increased demands of pregnancy folate-iron deficiency.[10]

An Indian study reported that pregnant women with malaria are at increased risk of hypoglycemia, cerebral malaria, renal failure, hepatic failure and hypotension.[11]

WHO recommendations for the control of malaria in pregnancy are largely based on the situation in Africa, but strategies in the Asia-Pacific region are complicated by heterogeneous transmission settings, coexistence of multidrug-resistant Plasmodium falciparum and Plasmodium vivax parasites, and different vectors.

Government of India launched a national programme almost half a century ago, still malaria continues to be a major public health problem. Although some other infectious diseases are also worse in pregnancy, malaria seems to be a special case. As pregnant women and their unborn child are more vulnerable to malaria, so we choose to conduct the study to see the effects of malaria.[12]

Preventing and treating malaria in pregnancy can be a key intervention to improving maternal, fetal and child health globally and is linked to three of the Millennium Development Goals (MDG-3 Maternal Health, MDG-4 Child Health, MDG-5 Combating Infectious Disease.[13]

We hypothesized that the detrimental effects of pregnancy associated malaria would not be distributed uniformly throughout pregnancy and that the timing of the malaria infection would significantly affect placental pathology as well as clinical outcomes in mothers and infants. We designed a prospective study to examine the effect of timing of malaria infection on placental, maternal and infant outcomes.

Materials and Methods

This prospective study was conducted on 27 admitted pregnant female patients in ICU and medicine ward of ACPM medical college,

a 500 bedded teaching hospital in Dhule district, Maharashtra. The time period of study was from April 2013 through Feb 2014. Detailed clinical, biochemical, hematological examinations were conducted to establish the diagnosis of type of malaria and the various clinical manifestations. In ACPM medical college, Dhule there were around 175 deliveries done in given period of time. Out of 175 pregnant females 27 (15%) females were found to be positive of malarial parasites, so these 27 cases are taken for our study. There were around 256 cases of malaria (p.falciparum and p.vivax) in total of both males and females treated in medicine department, so out of these 256 cases 27 (10.6%) cases were found to be pregnant females.

Selection Criteria

It included pregnant female patients of different ages with documented plasmodium falciparum, vivax and mixed malaria after obtaining the formal consent from the pregnant female patient or relatives.

The study was designed to include the Demographic, clinical data, biochemical and hematological changes observed in pregnant female patients. The data was entered into a structured proforma separataly. Management was done as per standard guidelines. Patients were discharged after significant improvement in clinical as well as hematological and biochemical parameters.

Detailed clinical examination was done in all pregnant female patients. All these patients of Plasmodium falciparum, vivax and mixed malaria were evaluated clinically for history of fever, headache, myalgia, nausea vomiting, diarrhea, jaundice, cough, breathlessness, altered sensorium, convulsions, pallor, icterus, hepatosplenomegaly.

A total of 27 pregnant female patient conformed to the selection criteria and were included as part of sample size. The diagnosis of malaria was confirmed by conventional thick and thin peripheral blood films were Field stained and examined microscopically using a 100x oil immersion objective to detect and quantify parasitemia. A diagnosis of microscopically detectable malaria infection was made when asexual stage malaria parasites were detected on a thick film.

The laboratory investigations done in all the pregnant female patients included a complete hemogram, platelet count, random blood sugar, urea, creatinine and s. electrolytes. Liver function was evaluated by determining the levels of s. bilirubin blood for hepatitis B and C was done in all the pregnant female patients to rule out possibility of concomitant viral hepatitis.

Detailed ultrasonography was done to check the size and echo texture of the liver

Formal approval of hospital ethical committee and written consent of the pregnant female patients were obtained for this study.

Results

This study was conducted in ACPM medical college dhule district Maharashtra state, where 27 cases of documented malaria were taken and their clinical profile and outcome were studied in details.

Following statistical analysis shows study's results:

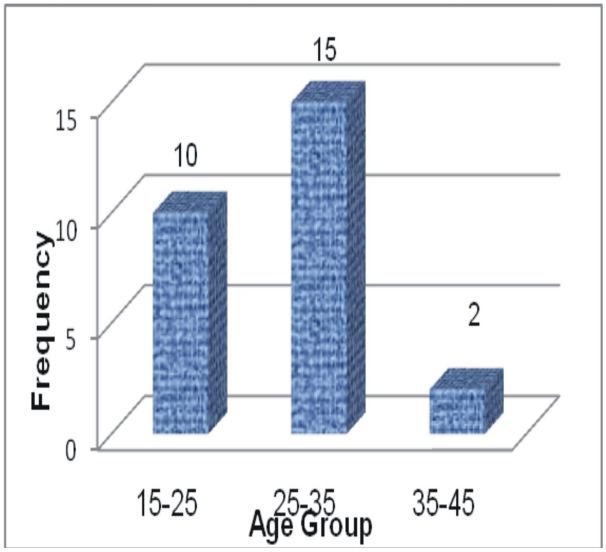
Age Group

Out of total 27 cases malaria both P.falciparum as well as P.vivax the most common age group of pregnant women affected was 25-35 years which was 55.6 % where as 15-25 years of age group were found to be infected with malaria were 37% and 35-45 years of age group were 7.4%

Table 1

Age Group	Frequency	Percentage
15-25	10	37
25-35	15	55.6
35-45	2	7.4
Total	27	100

Figure 1

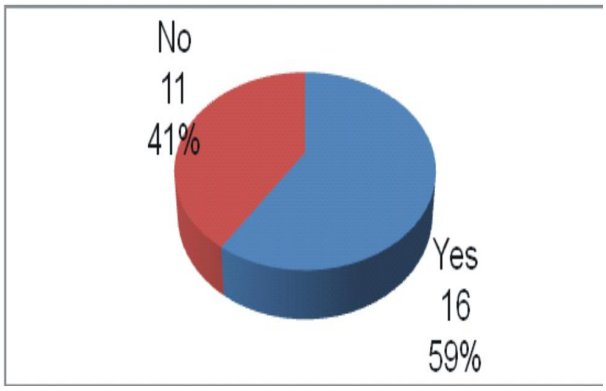


No. of Pregnancy

Out of total 27 cases it was primigravida who were more affected with malaria that's 59.26% as compared to multigravida 40.74%.

Table 2

No. of Pregnancy	Frequency	Percentage
Primigravida	16	59.26%
Multigravida	11	40.74%
Total	27	100.00%



Estimated Gestational Age at Enrollment (Weeks)

In total 27 cases from which 44.45% of pregnant women were in 1st trimester where as 40.75% were in 2nd trimester, and 14.80% were in 3rd trimester .

Table 3

Trimester	Frequency	Percentage
1st trimester	12	44.45%
2nd trimester	11	40.75%
3rd trimester	4	14.80%
Total	27	100%

Infection by Species

Out of total 27 cases 17 cases that's 62.97% of pregnant females were affected with P.falciparum were as 33.33% of pregnant females were affected with P.vivax and 1 case (3.70%) was affected with mixed i.e. both p.vivax and p.falciparum

Table 4

Species	Frequency	Percentage
P.Falciparum	17	62.97%
P.Vivax	9	33.33%
Mixed	1	3.70%
Total	27	100.00%

Symptoms

The most common presenting symptoms were high grade fever with chills and rigors along with vomiting followed by headache, altered sensorium, breathlessness. The average illness was 1-6 days before the patients presented to the hospital

The important clinical findings were Anemia with mean hemoglobin level was 6.4

Table 5

Symptoms	Frequency	Percentage
Fever	27	100%
Headache	8	29.63%
Myalgia	11	40.74%
Nausea and vomiting	12	44.44%
Diarrhea	7	25.93%
Jaundice	3	11.11%
Cough	5	18.52%
Breathlessness	4	14.81%
Altered sensorium	5	18.52%

gm% in plasmodium falciparum is low as compared to plasmodium vivax is 9.21gm%. Patients had evidence of thrombocytopenia with mean platelet count 65700/cmm in plasmodium falciparum as compared to plasmodium vivax 93000/cmm. Mean total leucocyte count were 9129 in plasmodium falciparum as compared to plasmodium vivax 9366. Mean birth weight in plasmodium falciparum were 2.1kgs in plasmodium falciparum as compared to plasmodium vivax 2.61kgs. Mean random blood sugar leval observed 60.7mg/dl and 87.44mg/dl in falciparum and vivax respectively. Study showed evidence of organ damage in plasmodium falciparum was 11.11% kidney and hepatic involvement each. There was observed 7.4% intrauterine death in plasmodium falciparum.

Discussion

In low-transmission area as ours, the immunity to malaria is not well developed and it has serious consequences for both mother and fetus. Poor, young pregnant females with unsatisfactory antenatal bear the brunt of these diseases.

As study done by Guin gita et al.[1] Primigravida are affected with malaria parasites are 60.6% and multigravida are 40.4% we also had a similar results where we found that primigravida were 59.26% where as multigravida 40.74%. Another study done in Nigeria by Njoku Ivoke[14] says that in primigravida and multigravida its 2nd trimester pregnant females are more affected.

In our study the mean hemoglobin level of pt with falciparum malaria was found to be 6.4 gm% and it was 9.21 gm% for vivax malaria which is matching with the study done by N. Singh[15] in central India in 1999.

In our study it shows that p. falciparum type of malaria was seen in 62.97% of cases that's 17 cases out of 27 where as p.vivax was seen in 33.33%(9 cases) and we also observed 1 case which was seen affected with both strains (3.7%), our results were matching with the study done in central India in 2009 by Davidson H Hamer and Meghna Desai[16] where they found 53.5% of pregnant females affected with p. falciparum and 37.2% p. vivax and 9.3% mixed strains. In the same study they also found that low birth weight babies delivered by females affected with malaria were 26.7%. where as we found that 33% of neonates delivered by females infected with malaria were low birth weight. Similar results were found in a another study done in Rajnand Chhattisgarh done by Neeru Singh.[17]

Headache, myalgia and neurological symptoms were found to be 30%, 40.74% and 18.52% respectively and study done by Guin Gita et al[1] found that headache 56% where as myalgia 78% and neurological symptoms were 14%.

2 still births were encounter in our study that's 7.4% of total cases which considers with the study done by Azucena Bardaji and Betuel Sigauque[18], 5.8% of total cases.

In study done by Beatriz C Jimenez [19] in Madrid Spain shows thrombocytopenia (platlets <150000/Mm^3)73% where as in our study it was 70%.

Renal failure was observed in 11.11% in our study it may be due to prerenal azotaemia or acute tubular necrosis due to blockade of renal microcirculation by sequestrated erythrocytes and it was commonly seen in p.falciparum type where as one study done in India by Konar H[20] in 2004 it shows in total of 8% of cases . Renal failure requires hemodialysis and it carries high risk of maternal mortality and in their study there was 9% were having hepatic involvement where as in our study it was 11.11% and similar to renal involvement hepatic involvement was also commonly seen in p.falciparum type only.

Hypoglycemia is another dreaded complication and commonly observed in p.falciparum. this is mainly due to increased consumption of glucose by host and parasite, in this series 37.03% of total cases where affected with hypoglycemia(fasting bsl<72mg/dl) where in one study done by

Konar H.[20] it was 17% and other study done in Aligarh India (Hassan A et al)[21] it was 37.5%.

Conclusion

Plasmodium falciparum malaria is more severe and life threatening in pregnant females as compared to plasmodium vivax, it was found in our study that either primgravida or multigravida. Plasmodium falciparum type of malaria causes more illness with higher incidence of complications, multiorgan involvement and supposedly bad prognosis.

1. In our study it was noted that most common age group of females affected was 25-35 years.
2. Out of total 27 cases it was primigravida who were more affected with malaria thats 59.26% as compared to multigravida 40.74%.
3. In total 27 cases from which 44.45% of pregnent women were in 1st trimester where as 40.75% were in 2nd trimester, and 14.80% were in 3rd trimester.
4. Out of total 27 cases 17 cases that's 62.97% of pregnant females were affected with P.falciparum were as 33.33% of pregnant females were affected with P.vivax and 1 case (3.70%) was affected with mixed i.e both p.vivax and p.falciparum.
5. The most common presenting symptoms were high grade fever (100%) with chills and rigors along with vomiting(44.4%) followed by headache(29%), altered sensorium(18.52%), breathlessness(14.81%). The average illness was 1-6 days before the patients presented to the hospital.
6. Anemia with mean hemoglobin level was 6.4 gm% in plasmodium falciparum is low as compared to plasmodium vivax is 9.21gm%.
7. %.Patients had evidence of thrombocytopenia with mean platelet count 65700/cmm in plasmodium falciparum as compared to plasmodium vivax 93000/cmm.
8. Mean total leucocyte count were 9129 in plasmodium falciparum as compared to plasmodium vivax 9366.
9. Mean birth weight in plasmodium falciparum were 2.1kgs in plasmodium falciparum as compared to plasmodium vivax 2.61kgs.
10. .Mean random blood sugar level observed 60.7mg/dl and 87.44mg/dl in falciparum and vivax respectively.
11. The kidney involvement was also present in patient with plasmodium falciparum malaria in total of 27 cases, 3 cases where we saw there was renal involvement that's 11.11%.
12. Patient with plasmodium falciparum malaria in total of 27 cases, 3 cases there was liver involved that's again 11.11%.
13. There was no organ involvement noted in patients with plasmodium vivax malaria.
14. There was also intrauterine death noted in 2 cases which was infected with plasmodium falciparum malaria.

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Calcium Metabolism in Pregnancy and Lactation

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Abstract

Pregnancy and lactation are periods of high calcium requirement. Around 200-300 mg of calcium/day is either transferred via the placenta to the fetus or excreted in breast milk. The provision of this calcium is made by the physiological adaptations of calcium absorption, urinary calcium excretion, and maternal bone calcium turnover. So woman of child-bearing age will meet their own needs of calcium and those of their infants if they regularly consume adequate amounts of calcium (1,000mg/day). Additional calcium supplementation during pregnancy appears to have the greatest impact in women who chronically consume < 500 mg calcium /day.

Hypertensive disorders of pregnancy are more frequent in countries where the customary calcium intake is low. In such areas, World Health Organization recommended calcium supplementation as part of the antenatal care for the prevention of preeclampsia in pregnant women, particularly among those at higher risk of developing hypertension.

Keywords: Calcium metabolism; Pregnancy; Lactation; Preeclampsia; Osteoporosis.

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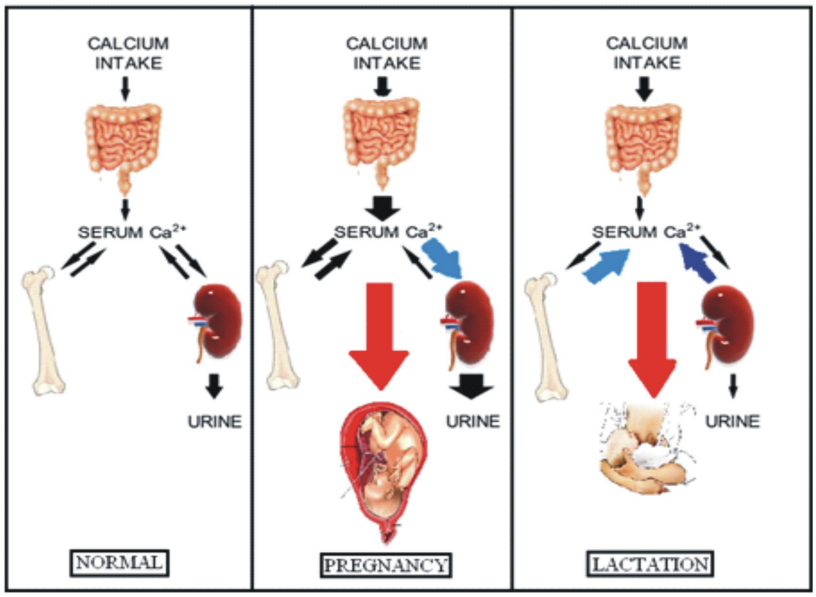
Introduction

Pregnancy and lactation are periods of high calcium requirement. Significant trans-placental calcium transfer occurs during pregnancy, to meet the demands of the rapidly mineralizing skeleton of the fetus & neonate. Similarly, there is an obligate loss of calcium in breast milk during lactation. These result in considerable stress on the bone mineral homeostasis in the mother. Potential adaptations include increased intake of mineral, increased efficiency of intestinal absorption of mineral, mobilization of mineral from the skeleton, and increased renal conservation of mineral. Despite a similar magnitude of calcium demand by pregnant and lactating women, the adjustments made in each of these reproductive periods differ significantly.

These hormone - mediated adjustments normally satisfy the needs of the fetus and infant with short-term depletions of maternal skeletal calcium content, but without long-term consequences to the maternal skeleton. In states of maternal malnutrition and vitamin D deficiency, however, the depletion of skeletal mineral content may be proportionately more severe and may be accompanied by increased skeletal fragility.[1]

The average calcium demand of a developing fetus is 30 gm by the end of gestation. 80 % of this calcium amount is acquired during the third trimester while the fetal skeleton is rapidly developing.[2] The total calcium accretion rate of the fetus increases from approximately 50 mg/day at 20 weeks gestation to 330 mg/day at 35 weeks . For the third trimester of pregnancy, 200 mg/day is considered the average accretion rate.[3] This demand for calcium is largely met by a doubling of maternal

Fig 1: Calcium homeostasis in human pregnancy and lactation compared with normal. The thickness of arrows indicates a relative increase or decrease with respect to the normal and non pregnant state.[1].



	Normal	Pregnancy	Lactation
Intake	N	↑	↑
Gi Absorption	N	↑↑	↑
Renal Excretion	N	↑	↓
Tubular Resorption	N	↑	↑↑
Bone Resorption	N	↑	↑↑

intestinal calcium absorption, mediated by 1,25-dihydroxyvitamin D3 (1,25(OH)2D3), or calcitriol, and possibly by other factors.[1]

Physiological changes in calcium metabolism during pregnancy

One of the earliest changes in calcium metabolism during pregnancy is a decrease in total serum calcium. This change is not physiologically significant. This fall is due to the decrease in serum albumin that accompanies the normal hemodilution of pregnancy. The ionized calcium (the physiologically important fraction of calcium) remains constant throughout pregnancy. PTH levels fall into a low-normal range during the first trimester, but rise throughout the pregnancy to reach normal level by the end of gestation.[4] Calcitonin levels are increased throughout the pregnancy preventing extreme calcium loss from the maternal skeleton. However, some calcium from the mother's skeleton is used for fetal development & is not completely spared.[4] The most adaptive change protecting the maternal skeleton from bone density loss may be the shift in levels of 1,25(OH)2D3. Total 1, 25(OH) 2D3 levels double early in pregnancy and maintain this increase until term; free 1, 25(OH) 2D3 levels are increased from the third trimester and possibly earlier. This increase can occur as early as 12 weeks gestation & researchers hypothesize, the maternal skeleton starts absorbing more calcium early & stores it in preparation for when the fetus will need the calcium during skeleton development in the third trimester.[2] The increase in 1, 25(OH) 2D3 may be largely independent of changes in PTH because PTH levels typically are decreasing at the time of the increase in 1, 25(OH) 2D3. The maternal kidneys likely

account for most, if not all, of the increase in 1, 25(OH) 2D3 during pregnancy, although the decidua, placenta, and fetal kidneys may contribute a small amount.[5]

Parathormone related peptide (PTHrP) is a prohormone that produces multiple N-terminal, mid-molecule & C-terminal peptides which differ in their biological activities & specificities. However, none of these peptides have been systematically measured during pregnancy. The most studied is the large molecule which comprises 1 – 86 amino acids. The levels start rising usually around the mid-second to third trimester of pregnancy. Because PTHrP is produced by many tissues in the mother and fetus (including the placenta, amnion, decidua, umbilical cord, fetal parathyroids, and breast), it is unclear which sources contribute to the increase detected in the maternal circulation. Several roles of PTHrP are postulated from animal studies, including fetal calcium transfer & stimulating 1- alpha hydoxylase activity. Further, the carboxy terminal of PTHrP called "osteostatin" may suppress osteoclastic activity & may have a possible bone protection role in the mother.[5,6,7]

Other hormones

Many other hormones, growth factors, and cytokines are elevated in the maternal circulation during pregnancy that could stimulate or drive the observed changes in calcium absorption, 1, 25-dihydroxyvitamin D synthesis, and bone turnover. These include prolactin, oestrogen, progesterone, placental lactogen, placental growth hormone, tumor necrosis factor alpha, and insulin-like growth factor-1. Their relative contributions to calcium and bone metabolism in human pregnancy have yet to be established.[5,8,9]

Intestinal calcium absorption

The total body calcium content is 1000–2000 g, and 99% of the calcium in the body of adult individuals is in the skeleton. About 200–400 mg of calcium are absorbed daily by active transport from the proximal small bowel in the non-pregnant adult. During pregnancy, however, intestinal absorption increases twofold, particularly during the third trimester.[2–4] Increased intestinal calcium absorption is already present at 12 weeks, which is the earliest gestational age that has been studied. It is associated with higher serum levels of 1-alpha-25-dihydroxyvitamin D (1,25-(OH)2D3) as well as increased intestinal expression of the vitamin D-dependent calcium-binding protein calbindin-9K. Prolactin (PRL) and human placental lactogen (HPL) are believed to be other factors contributing to the increased intestinal calcium absorption. Because the increased intestinal calcium absorption starts so early in gestation and well before the peak demands of the third trimester, it is thought that some calcium is stored in the maternal skeleton in anticipation for subsequent demands.[10] This is something that has been observed in some animal models, but has not been possible to directly asses in humans.

Renal calcium excretion

Under normal circumstances, 98% of calcium filtered by the kidney is reabsorbed, mostly in the proximal tubules. However, in pregnancy the urinary calcium excretion is higher than outside pregnancy and correlates with the increased glomerular filtration rate (GFR).[11] The increased urinary calcium excretion has also been detected as early as 12 weeks of gestation. The increased intestinal calcium absorption and the higher calcitonin (CT) levels of pregnancy are also believed to be contributing factors favoring renal calcium excretion.[10] In the fasted state, the calcium excretion is normal or even low.[2]

Skeletal calcium metabolism

Serum Markers

Most human studies of skeletal calcium metabolism in pregnancy have examined changes in serum markers of bone formation (bone-specific alkaline phosphatase, osteocalcin, procollagen I and carboxypeptidase) & urine markers of bone

resorption (24-hour collection of deoxypyridinoline, hydroxyproline and pyridinoline). These studies indicate that bone formation indices are decreased and bone resorption markers are increased. Based on those results, it has been assumed that there is decreased bone formation and accelerated bone resorption. These studies are fraught with a number of confounding variables, including lack of pregpregnancy baseline values, effects of hemodilution in pregnancy on serum markers; increased GFR & renal clearance; altered creatinine excretion ; placental, uterine, & fetal contribution to the markers; degradation and clearance by the placenta; and lack of diurnally timed or fasted specimens. Therefore these markers may not be accurate indicators of bone metabolism in pregnant women.[12]

Imaging

Changes in maternal bone mineral content (BMC) and bone mineral density (BMD) resulting from gestation have been studied using three different imaging techniques: dual x-ray absorptiometry (DXA), quantitative ultrasound, and peripheral quantitative computed tomography (pQCT). pQCT is the only technique available formeasuring changes in trabecular bone, the type of bone most likely to be mobilized in the adult skeleton during pregnancy.[13]

Bone mineral density (BMD) studies by Dual Energy X-ray Absorptiometry (DXA) scan or its other versions are contraindicated during pregnancy. Few studies in pregnant women where it was done immediately after delivery or after an abortion at various periods of gestation showed variable results precluding any concrete conclusions. Such studies are confounded by the changes in body composition and weight during pregnancy which may also interfere with bone density estimation by DXA.[5,14]

Quantitative ultrasound is able to measure bone without the use of ionizing radiation, allowing it to be used during pregnancy, primarily at the calcaneus and phalanges. Evidence has shown that the speed of sound, an indication of the density and structure of the trabecular bone, decreases significantly at the phalanges ($P < 0.05$)[15,16] and the calcaneus ($P < 0.001$)[17] between the first and third trimesters. A limitation of quantitative ultrasound is its greater variability in measurement than either DXA or pQCT; since pregnancy is a time period in which changes in fluid status and body size occur, the variability in the quantitative ultrasound measurements may increase.[18]

To date, Wisser *et al* are the only investigators to use pQCT to measure gestational changes in trabecular and cortical bone. The measurement was performed at only one site, the non dominant distal radius. Cortical bone volume and density did not change between the first and third trimesters of pregnancy, but a significant decrease was seen in trabecular bone density (mean of -3.1%, with some women losing up to 20.7%). Trabecular bone density is more sensitive to bone turnover, particularly that resulting from hormonal changes in women, such as what occurs during gestation.[19]

It seems certain that any acute changes in bone metabolism during pregnancy do not normally cause long-term changes in skeletal calcium content or strength. Numerous studies of osteoporotic or osteopenic women have failed to find a significant association of parity with bone density or fracture risk[2,20]; however, a few studies of women with extremely low calcium or vitamin D intake found that pregnancy may compromise skeletal strength and density. Although most clinical studies could not separate out the effects of parity from the effects of lactation, it may be reasonable to conclude that if parity has any effect on bone density or fracture risk, it normally must be only a modest effect. A more recent study of twins indicated that there may be a small protective effect of parity and lactation on maintaining bone mineral content.[21]

A few examples exists in which calcium balance between maternal skeleton, intestine and renal conservation are not equal, possibly putting the mother at greater risk for bone

density loss:

1. *Adolescent Mothers:* Studies have shown that bone mass density decreases as much as 10% in adolescent mothers during pregnancy and lactation. This decrease did not occur in women over the age 18 years.[22] This loss can be offset by increasing the adolescent's dietary calcium intake.[22]
2. *Heparin Use:* Women who are using heparin injections to prevent deep vein thromboses during pregnancy have reported several cases of vertebral osteoporosis. Heparin inhibits the synthesis of 1,25-dihydroxyvitamin D. Without the compensation mechanism of increased intestinal calcium absorption with 1,25-dihydroxyvitamin D, greater risk of bone density loss occurs.[22]
3. *Low Calcium Intake:* There are limited data that low calcium intake in the mother may adversely affect fetal mineral accretion and maternal bone mineral metabolism.[23]

In a longitudinal study researchers hypothesized that if the mother's calcium intake was too low the body would not completely compensate and a greater bone loss would occur. They found that the level of bone turnover markers negatively correlated with the calcium intake. Women with lower dietary calcium intakes had greater turnover. One turnover marker; beta CTX , doubles in women who consume recommended daily amount of calcium during the third trimester. For women who had half of the recommended amount of calcium, their turnover marker was eight times as high as a non pregnant woman. Thus, the body's physiological response to calcium metabolism to pregnancy may not be enough to cover all the calcium needs of the fetus in women with low dietary calcium intake.[4]

In women with low dietary calcium intake there are differing results as to whether or not calcium supplementation during pregnancy improves maternal or neonatal bone density.[23] There is a short term evidence that maternal turnover was reduced when 1.2 gm of calcium was given for 20 days to 31 Mexican women with a mean calcium intake of 1 g during weeks 25-30 of gestation.[24]

Preeclampsia

1980 Epidemiological Study conducted in Guatemala were Scientists noted that Mayan Indians exhibited high Calcium intakes and low incidence of preeclampsia and eclampsia.[25]

Eclampsia is more common in countries where the dietary calcium intake is low.[26]

Low calcium intakes during pregnancy may:

1. Stimulate PTH secretion, increasing intracellular calcium levels. This leads to smooth muscle vessel contraction and hypertension. And/ or
2. Releases Renin from the Kidney, leading to vasoconstriction and retention of sodium and fluids. These physiological changes can lead to the development of preeclampsia.[18]

A meta analysis of the role of calcium supplementation during pregnancy in the prevention of gestational hypertensive disorders found a 45 % reduction in the development of preeclampsia in women receiving calcium versus placebo. (Relative risk [RR]: 0.55; 95% confidence interval [CI] 0.36-0.85).[27]

The World Health Organization conducted a calcium supplementation trial (1500 mg/ day or Placebo) during pregnancy in women who habitually consumed <600 mg calcium/ day. Women (n=8325) began supplementation at 20 weeks of gestation and where monitored until delivery. The difference in the incidence of the preeclampsia between the control group (4.5%) and the calcium group (4.1%) was not significantly different. However, the relative risks of severe preeclampsia (RR 0.76; 95% C.I.0.66-0.89) and eclampsia (1.2 % calcium vs. 2.8% placebo, P= 0.04) were both significantly lower in women supplemented with calcium.[28]

A large randomized controlled trail, involving 4,589 nulliparous pregnant women

in United States demonstrated that in a population with an average calcium intake of 1100 mg/day, calcium supplement of 2000 mg/day did not reduce the incidence of either preeclampsia or raised blood pressure.[29] However , it should be noted that this study included women who were at low risk for gestational hypertension. Also all women, even the control group received some calcium in their regular prenatal vitamins.[8]. This may support that calcium supplements only show results when the daily intake is lower than the amount that would provide maximum benefit.[30]

A Cochrane review of 13 trials involving 15730 pregnant women reported that the average risk of preeclampsia was reduced in those receiving calcium supplements (RR=0.45) and that the effect was greatest in women with low baseline calcium intakes (RR=0.36).

The review concluded that pregnant women consuming low amount of calcium could reduce their risk of preeclampsia by 31 -65% if they consumed an additional 1000 mg of calcium/day.[31]

Whether calcium supplementations during pregnancy could prevent childhood hypertension?

The Researchers believed that later blood pressure could be programmed during fetal development. The study conducted by Belizain and colleagues included 591 children, ages 5-9 years old, whose mothers either took 2 g/ day calcium supplements or a placebo. The Researchers found that the systolic blood pressure was lower in the calcium group by an average of 1.4 mm Hg. The most significant blood pressure changes were found in overweight children who had body mass indices above 17.5. Their systolic blood pressure dropped an average of 5.8 mm Hg. [32]

Preterm delivery

Calcium supplementation has shown effectiveness in reducing risk of preterm delivery in women with low calcium intake. Amongst the pregnant women whose calcium intake is less than 600 mg/ day were supplemented with additional calcium (1500 mg/day). A decrease in the risk of preterm delivery, maternal morbidity and neonatal mortality index were observed following the above.[28]

Infant growth

Maternal malnutrition has a major impact on fetal growth and birth weight and hence on skeletal mass. Poor nutrition during pregnancy may reduce neonatal bone density as well as size. Calcium intake during pregnancy may have positive effect, but the research has provided conflicting results.[32,33,34]

A positive relationship between maternal calcium intake and infant length or mid upper arm circumference has been shown[33,34] but the reasons have not been reproduced in other studies.[34,35]

Calcium metabolism during lactation

During lactation, the mother undergoes a continued stress on calcium demand with production of breast milk. Human milk contains two to three times the maternal serum level of calcium, and it is estimated that between 280 and 400 mg of calcium go into breast milk daily.[36] Women breastfeeding twins might lose up to 1000 mg per day.[10] Except in mothers with vitamin D deficiency and low serum calcium levels, the calcium concentration in milk does not change. [5,37] During the first 6 months after delivery the mean calcium concentration in breast milk is slightly higher than during the succeeding 6 months but calcium loss in breast milk remains significant throughout lactation [38]. Calcium losses during lactation are even greater than in late pregnancy when calcium transfer to the fetus is greatly increased.[10] In contrast to the pregnant state, this demand is met mainly by increased resorption of calcium from the bone and partly by increased reabsorption from the kidneys.

Minerals & hormones

During lactation, PTH, serum calcium, ionized calcium, and urinary calcium excretion levels to normal pre-pregnancy ranges.[22]

Calcitonin levels fall to normal within six weeks postpartum.[2]

The high levels of 1,25-(OH)2D3 decrease rapidly after delivery and remain in the normal range afterwards.[39]

As a result, no increase in intestinal absorption of calcium occurs to compensate for the loss to the neonate. Without this mechanism, the primary source of extra calcium becomes the maternal skeleton.[4]

PTH

Intact PTH, as determined by a two-site IRMA, has been found to be reduced 50 % or more in lactating women in the first several months postpartum. It rises to normal level at weaning, but may rise above normal post weaning.[2]

PTH is believed to play an important role in the rapid recovery of bone mass that takes place after weaning and also in the renal conservation of calcium and phosphorus. [40,41]

Parathyroid hormone-related protein

The most striking of the hormonal changes observed during lactation is the marked increase in PTHrP levels in breast milk.[10]

The source of PTHrP may be the breast, because PTHrP has been detected in breast milk at concentrations exceeding 10,000 times the level found in the blood.[2] Though it is biologically weak when compared with PTH, the high levels result in bone resorption and increased tubular re absorption of calcium and also suppress PTH.[42]

Intestinal absorption of calcium

Intestinal calcium absorption decreases to the non pregnant rate from the increased rate of pregnancy. This decrease in absorption corresponds to the decrease in 1, 25(OH) 2D3 levels to normal.[12]

Renal calcium excretion

In humans, the GFR decreases during lactation, and the renal excretion of calcium typically is reduced to very low levels. This situation suggests that tubular reabsorption of calcium must be increased, to account for reduced calcium excretion in the setting of increased serum calcium. [12]

Skeletal calcium metabolism

Serum markers of bone formation and urinary markers of bone resorption have been assessed in numerous cross-sectional and prospective studies of lactation. Some confounding factors discussed with respect to pregnancy apply to the use of these markers in lactating women. During lactation, GFR is reduced, and the intravascular volume is more contracted. Urinary markers of bone resorption (24-hour collection) increase two to three times above normal during lactation and are higher than the levels attained in the third trimester. Serum markers of bone formation (not adjusted for hemoconcentration or reduced GFR) are generally high during lactation and increase over the levels attained during the third trimester. Total alkaline phosphatase declines immediately postpartum owing to loss of the placental fraction, but still may remain above normal because of the elevation in the bone-specific fraction. Despite the confounding variables, these findings suggest that bone turnover is significantly increased during lactation.[12]

The combination of high PTHrP and prolactin with rapidly decreasing estrogen levels is believed to be the main reason for the skeletal changes in lactating women.[43] It is estimated that lactation causes a 3–10% decline in bone mineral content after breastfeeding for 6 months, as reported by studies measuring serial bone density changes. The loss is greater in trabecular (lumbar spine, femur, and distal radius) than in cortical

bone.[44,45,46,47]. Taller women have been reported to have greater bone loss during lactation [44&48]. The loss occurs at a peak rate of 1-3% per month, far exceeding the rate of 1-3% per year that can occur in women with postmenopausal osteoporosis who are considered to be losing bone rapidly. Loss of bone mineral from the maternal skeleton seems to be a normal consequence of lactation and may not be preventable by raising the calcium intake above the recommended dietary allowance. Several studies have demonstrated that calcium supplementation does not significantly reduce the amount of bone density lost during lactation.[2] Not surprisingly, the lactational decrease in bone mineral density correlates with the amount of calcium lost in the breast milk output.[48]

The mechanisms controlling the rapid loss of skeletal calcium content are not fully understood. The reduced estrogen levels of lactation are important, but are unlikely to be the sole explanation.[13]

All bone losses are regained 3-6 months after weaning, regardless of how much was lost, at a rate of 0.5 – 2 % per month.[12]

The mechanism for this restoration of bone density is uncertain and largely unexplored, but preliminary evidence from animal models suggests that PTH, calcitriol, calcitonin, and estrogen may not be required to achieve that restoration.[2]

Osteoprosis associated with Pregnancy and Lactation

Osteoporosis associated with Pregnancy and Lactation has been recognized for more than five decades.

Osteoporosis is difficult to diagnose during pregnancy as DXA scan, the gold standard for diagnosing the condition, cannot be done during in pregnancy.[5] It usually presents during late pregnancy or early post partum. Clinical manifestation usually includes severe back pain especially in the lumbar area and may be associated with collapse of the vertebrae. In most instances, the possibility that the woman had low bone density before conception cannot be excluded. Some cases may be confounded by chronic therapy with heparin, anticonvulsants, or corticosteroids, among other causes of secondary osteoporosis.[2]

In a series of 35 women with osteoporosis in pregnancy, majority had a maternal history of fracture, possibly implicating a genetic basis.[49] However, pregnancy and lactation itself are states of relatively high bone turnover and may thus cause further deterioration in bone density in an already predisposed individual. Another point in favor of the role of pregnancy in this condition is that most cases recover within few months of delivery.[5,49,50,51] Management is conservative and most patients recover clinically & radiologically in 3-6 months postpartum. Myriad pharmacologic agents have been used in individual cases, including calcium, vitamin D, testosterone, estrogen, calcitonin, and bisphosphonates, with increments in bone mineral density reaching 27 % at the spine and 7 % at the hip in patient case treated with alendronate for six months.[52]

In severe cases of osteoporosis, it may be prudent to discourage breast feeding, the rationale being that the skeleton may not be able to tolerate the normal demineralization that lactation would induce. Patients should be cautioned against carrying heavy weights to avoid additional stress on the spine, and the use of a supportive corset may be helpful.[1]

Transient osteoporosis of hip (TOH)

This is a distinct condition seen in pregnancy. It is also called algodystrophy of the hip.[5,49,53] The pathophysiology is more related to local factors. The theories proposed to explain the condition include femoral venous stasis due to gravid uterus, reflex sympathetic dystrophy, ischemia, trauma, viral infections, immobilization, and fetal pressure on the obturator nerve. These patients present with unilateral or bilateral hip pain, limp, and/or hip fracture in the third

trimester. There is objective evidence of reduced bone density of the symptomatic femoral head and neck that has been shown by MRI to be the consequence of increased water content of the femora head and the marrow; a joint effusion may also be present. The symptoms and the radiological appearance usually resolve within 2-6 months postpartum.[2]

Calcium recommendations

During Pregnancy and Lactation calcium is needed for fetal growth and breast milk production. The amount required, approximately 200 mg/ day is substantial in relation to the daily calcium intake for many women. It has long been assumed that the extra calcium needed for pregnancy and lactation must be satisfied by increasing dietary calcium intake. However, the recent evidence detailed in this review, is that human pregnancy and lactation are accompanied by physiological changes sufficient to make calcium available for fetal growth and breast milk production without necessitating increase in maternal calcium intake. Physiological hyper absorption of calcium occurs in pregnancy, preceding the demands of the fetus for calcium, whereas renal conservation of calcium and temporary liberation of calcium from the skeletal occur in lactation.

It would appear; therefore, that pregnancy and lactation in human are characterized by physiological adaptive processes that provide the calcium necessary for fetal growth and breast milk production. So no extra calcium is needed from the diet.

Women of child bearing age group will meet their own needs and those of their infants if they regularly consume adequate amounts of calcium. (1,000 mg/day). Additional calcium supplementation during pregnancy appears to have the greatest impact in women who chronically consume <500 mg calcium per day, demonstrating the importance of adequate calcium intake before pregnancy begins.

W.H.O. recommendation for prevention of preeclampsia

In populations where calcium intake is low, calcium supplementation as part of the antenatal care is recommended for the prevention of preeclampsia in pregnant women, particularly among those at higher risk of developing hypertension (*strong recommendation*).[54,55]

A suggested scheme for supplementation in pregnant women is presented in Table 1.

If they have one or more of the following risk factors: obesity, previous pre-eclampsia, diabetes, chronic hypertension, renal disease, autoimmune disease, nulliparity, advanced maternal age, adolescent pregnancy and conditions leading to hyperplacentation and large placentas (e.g. twin pregnancy). This is not an exhaustive list, but can be adapted/

Table 1: Suggested scheme for calcium supplementation in pregnant women

Dosage	1.5–2.0 g elemental calcium/day[a]
Frequency	Daily, with the total daily dosage divided into three doses (preferably taken at mealtimes)
Duration	From 20 weeks' gestation until the end of pregnancy
Target Group	All pregnant women, particularly those at higher risk of gestational hypertension[b]
Settings	Areas with low calcium intake

By WHO. *Guideline: Calcium supplementation in pregnant women.* Geneva, World Health Organization, 2013
a-1 g of elemental calcium equals 2.5 g of calcium carbonate or 4 g of calcium citrate.
b-Women are regarded as being at high risk of developing gestational hypertension and pre-eclampsia

complemented based on the local epidemiology of preeclampsia.

Implementation of this recommendation requires close monitoring of women's total daily calcium intake (diet, supplements and antacids). The overall intake of calcium per day should not exceed the locally established upper tolerable limit. In the absence of such reference standards, an upper limit of calcium intake of 3 g/day can be used.

Conclusion

Maternal adaptations during pregnancy and lactation meet the increased mineral demand of the growing fetus. Increased intestinal absorption of calcium during pregnancy and skeletal resorption of calcium during lactation form the main maternal adaptation mechanisms to meet this raised requirements.

It may be important to optimize dietary calcium intake of women prior to conception. Appropriate calcium nutrition should be focused on young women before child bearing instead of targeting only pregnant and lactating women, as is the common practice currently.

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Rare Case of True Hermaphrodite: A Case Report

P.K. Bhatnagar*, Rita Saxena, Pankaj Saxena***, Rajesh Vyas******

Abstract

True hermaphrodite is one of the rarest variety of Disorders of Sexual Differentiation (DSDs) and represents only 5% of cases of all.

A 12 year-old presented with complains of pain and swelling right side lower abdomen with Right sided Undescended testis. On exploration Mullerian structures was present on right side and on left side testis was normal into left hemiscrotum.

Keywords: True hermaphrodite; Persistent mullerian duct syndrome; Disorders of Sexual Differention.

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Introduction

Disorders of Sex Development (DSD) are congenital condition in which the development of chromosomal, gonadal or anatomic sex is atypical.[1] In about 60% of cases, patients have 46XX karyotype.[2] Rarely, 46XY/46XX mosascism may occur.[3] There have been report of 46XX karyotype.[4]

Case Report

A 12 year-old patient presented in Out Patient Department of Jodhpur medical college and hospital Jodhpur. Brought up as a male child with complains of pain and swelling right sided lower abdomen.

On examination right sided undescended testis and bilateral mild gynacomastia was present. Left testis and penis was normal. (Fig 1)

Ultrasonography scan revealed that right testis in right inguinal canal with tortion. Serum FSH, LH and Estradiol levels were normal according to male patient with its age. However serum testosterone level was slightly lower. Other investigations were within limits.

Figure 1

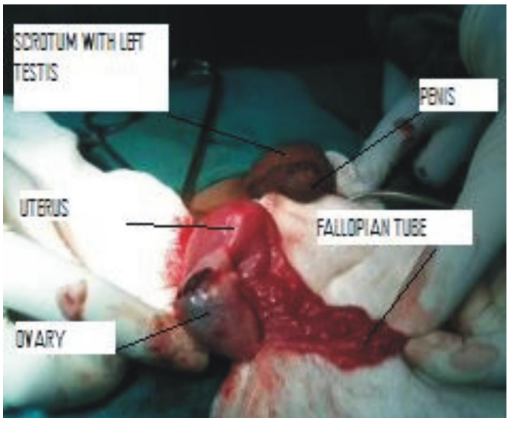


Figure 2

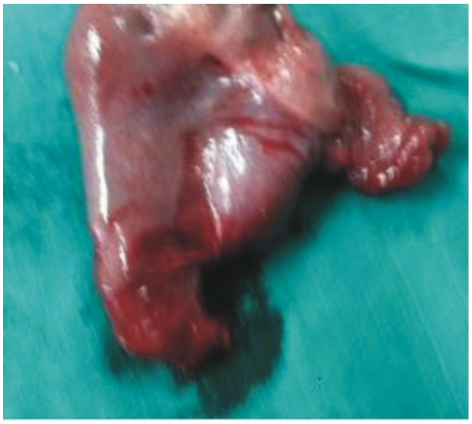
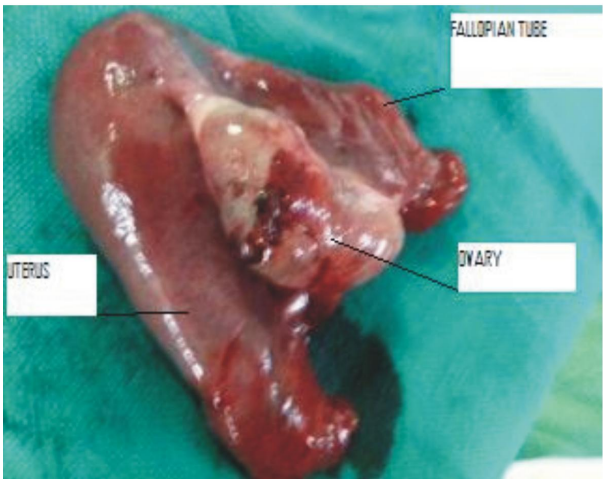


Figure 3



Patient was explored with right inguinal incision and intraoperative finding demonstrated well developed Uterus, Fallopian tube and Ovary instead of right Testis. (Fig 2 - 3) Because patient was by appearance and upbringing a male, these organs were removed. Patient made uneventful recovery.

Biopsy report shows fallopian tube, rudimentary ovary and normal endomyometrium tissue in proliferative phase. No testicular tissue seen in left side.

Karyotypic analysis showed a model number karyotype 46XX with no numerical or structural chromosomal anomalies detected at the banding resolution.

Discussion

Disorder of Sexual Differentiation is the term used for a child born without clear Male or Female phenotype. The term "Hermaphrodite" is derived from Greek mythological God "Hermaphroditos" son of Hermes and Aphrodite, whose body after being merged with nymph Salmakis assumed a more perfect form with both male and female attributes.[5]

Hinman[6] has classified true Hermaphroditis concisely Bilateral: Testis and Ovary (Ovotestis) on each side (50%) Unilateral: Ovotestis on one side and with ovary or testis on the other side (20%) Lateral or alternating: Testis on one side and Ovary on other side (30%). The most common karyotype[7] in true hermaphroditism are 46XX (60%), 46XY (12%) and mosaic (28%) usually 46XX/46XY, 46XY/47XXY or less frequently 45XO/46XY.

The external genitalia of true hermaphrodite are most often ambiguous but can vary from almost normal female to almost male.[8] Internally Mullerian and wolfian derivatives usually coexist.[9] Breast development occur at puberty and virilization may also occur, there may be incomplete development of secondary sex characteristics.[10]

In our case, according to Hinman classification lateral type of true hermaphrodite and karyotype was 46XX. This patient was upbringing as male child so we removed mullerian structured and in follow up period we started testosterone.

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Obesity in Obstetrics and Gynecology- an Update on Disease-Specific and Treatment-Specific Influences

Nisha Rani Jamwal, Kumar Senthil P., Vijaya Revankar***, Eva Chris******

Abstract

The objective of this short communication paper was to address the implications of obesity in obstetrics and gynecology through an evidence-informed integrative overview of literature searched from PubMed database, on disease-specific and treatment-specific effects. Studies demonstrated disease-specific influence of obesity in women with cervical cancer, breast cancer, gynecological cancer (ovarian cancer, endometrial cancer), and treatment-specific influence for procedures such as laparasocopy, fat mobilization system and Jejuno-ileal bypass surgery. There is need for future longitudinal cohort studies in women to explore the predictive factors for obesity and its consequences in obstetric and gynecological health and disease.

Keywords: Metabolic gynecology; Gynecological obesity; Gynecological cancer; gynecological endocrinology.

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Introduction

Obstetrically, obesity was often associated with sterility, excess weight leadingtomaternal and/or fetal complications during pregnancy, and gynecologically, obesity was associated positively with tumours and menopause in aged women.[1] Dieting behaviors and nutrition behaviors influence development of anorexia, bulimia and obesity which have an enormous impact on the gynecologic health and disease (oligomenorrhea or irregular menses; anovulation and hyperandrogenism; polycystic ovary syndrome) in women.[2] The objective of this short communication paper was to address the implications of obesity in obstetrics and gynecology through an evidence-informed integrative overview of literature searched from PubMed database, on disease-specific and treatment-specific effects.

Disease-specific influence

Cervical cancer

Screening for cervical cancer among women was influenced by obesity, and obese women were less likely to have had a recent Papanicolaou test and/or mammography than their non-obese counterparts.[3]

Breast cancer

Screening for breast cancer by mammography was also influenced by obesity and gynecological history. Compared with their counterparts, the obese women had delayed return of mammography resolution or follow-up whilst more women who had undergone hysterectomy returned promptly for diagnostic follow-up studies.[4]

Endometrial cancer

Obesity was associated with decreased scores on physical domain of FACT-G and SF-36 in women with early stage endometrial cancer which

indicated that women with early endometrial cancer had similar changes in QOL as those who received surgery for benign disease.[5]

Gynecological cancer

Endocrine factors play a major role in development of gynecological neoplasias which might be best understood in terms of role of adipose tissue and androgens on globulin production thereby influencing levels of active steroids in endometrial and mammary tissues.[6]

Obesity increased the risk for endometrial cancer, ovarian cancer, cervical cancer (adenocarcinoma), vulvar cancer by increasing the endogenous estrogen levels which in turn affects glucose metabolism, through its effects on the wide range of adipocytokines and inflammatory mediators produced by adipose tissue among obese individuals.[7]

Obesity profoundly increased the incidence of endometrial cancer, through the effects of unopposed increased estrogen levels, and modestly increased the incidence of premenopausal ovarian cancer and might potentially increase incidence of cervical cancer, perhaps as a result of the impact on glandular cancers or decreased screening compliance. Obese women had decreased survival, increased surgical complications and also radiation-associated complications.[8]

Surgical outcomes in gynecological oncology (cervical, endometrial, and ovarian cancer) depend upon intra- and postoperative complications, extent of lymphadenectomy, negativity of the specimens' margins, and percentage of optimal debulking between obese and non obese patients affected by malignancies.[9] On the contrary, obesity was found not to affect the number of retrieved lymph nodes and the rate of intraoperative complications followinglymphadenectomy in gynecologic cancers.[10]

Healthcare providers' practices and attitudes such as self-perceptions of obesity, discussion about weight may harm patient-provider relationship, understanding the importance of lifestyle interventions, and professional expertise, importance of obesity education, and referral to obesity management interventions influence outcomes of obese women with gynecological cancer.[11]

Polycystic ovarian disease

In polycystic ovarian disease (PCOD), obesity played an important role in climacteric women whose redistribution of adipose tissue had occurred with increase in visceral fat deposits, which is a cardiovascular risk factor that could be effectively controlled by diet and regular physical activity.[12]

Treatment-specific influence

Obesity influenced surgical operation difficulty in laparoscopic procedures, and in abdominal adhesion grade, but not on estimated blood loss, operating time, operative complications, postoperative complications, hospital stay, rate of conversion to laparotomy.[13] Outcomes of other treatments such as fat mobilization system[14] and Jejuno-ileal bypass surgery[15] were also demonstrated to be influenced by obesity.

Studies demonstrated disease-specific influence of obesity in women with cervical cancer, breast cancer, gynecological cancer (ovarian cancer, endometrial cancer), and treatment-specific influence for procedures such as laparasocopy, fat mobilization system and Jejuno-ileal bypass surgery. There is need for future longitudinal cohort studies in women to explore the predictive factors for obesity and its consequences in obstetric and gynecological health and disease.

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Scholarly Journals in Obstetrics and Gynecology: Their Role in Evidence-based Maternal and Women's Health

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Abstract

This short communication highlighted the role of Obstetrics and Gynecology (OBG) journals in enabling evidence-based maternal and women's health through a preliminary search of PubMed database for articles analyzing obstetrics and gynecology journals and found five studies: on Spanish contribution in authorship, study designs, mislabeling of case-control studies, quality of randomized controlled trials, and citation accuracy. There is dearth need to evaluate the role of OBG journals through more systematic studies on reporting and publication characteristics in order to encourage Evidence-based OBG practice, education and research.

Keywords: Gynecological research; Gynecological journals; Gynecological publications; Evidence-based obstetrics and gynecology.

This short communication paper was aimed to highlight the role of Obstetrics and Gynecology (OBG) journals in enabling evidence-based maternal and women's health through a preliminary search of PubMed database for articles analyzing obstetrics and gynecology journals.

Spanish contribution

García-García *et al* (2005) performed bibliometric analysis of 779 Spanish scientific works published in OBG journals during the period 1986-2002 by applying customary rules of bibliometrics: Price's Law of increase in scientific literature, Bradford's Law of scattering of scientific literature and Lotka's Law of author productivity, and analyzed participation index (PaI), the collaboration index and the superior (%SUP). "Spanish productivity in the field of obstetrics and gynecology was found to be increased in the period 1986-2002, and the journal with the largest number of originals is Human Reproduction (Bradford's first area), with 217 articles and that with the highest PaI is Menopause. The total number of authors is 1829, who are responsible for 3938 authorships. The majority of the studies were carried out in hospitals (47.62%) and universities (23.36%).

Study designs

Funai *et al* (2001) analyzed the study designs of 1517 articles published in four journals: American Journal of Obstetrics and Gynecology (AJOG), Obstetrics and Gynecology (O&G), Gynecologic Oncology (GO), and Fertility and Sterility (F&S). The clinical research articles were reported at 90.4% (observational articles- 68.2% and experimental articles-14.1%), and AJOG had more animal studies at 10.7% followed by F&S at 4.2%. F&S had more controlled clinical trials, whereas O&G had more randomized controlled trials compared to other three journals.

Mislabeling case-control studies

Grimes (2009) reviewed 124 articles from four OBG journals (American Journal of Obstetrics & Gynecology, Fertility and Sterility, Journal of Reproductive Medicine, and Obstetrics & Gynecology) for "case-control" studies to estimate the frequency of mislabelling and found that the 30% of articles labelled as "case-control" in the title that were not case-control studies, and this frequency varied from 13% to 36% in the four journals, with a 2.8-fold difference in frequency.

Randomized controlled trials

Schulz *et al* (1994) reviewed 206 parallel group randomized controlled trials from the 1990 and 1991 volumes of four journals of obstetrics and gynecology, and found that only 32% of the reports described an adequate method for generating a sequence of random numbers, and only 23% contained information showing that steps had been taken to conceal assignment until the point of treatment allocation. Only 9% of trials described both sequence generation and allocation concealment.

Citation accuracy

Roach *et al* (1997) reviewed three journals: American Journal of Obstetrics and Gynecology, the Australian and New Zealand Journal of Obstetrics and Gynaecology, and the British Journal of Obstetrics and Gynaecology to determine error rate in references and found that the lowest error rate was 55.6% from the Australian and New Zealand Journal of Obstetrics and Gynaecology, and the highest was 66.7% from the British Journal of Obstetrics and Gynaecology, most of which were either in the title of the article or in the authors' names.

There were five studies on analysis of OBG journals: on Spanish contribution in authorship, study designs, mislabelling of case-control studies, quality of randomized controlled trials, and citation accuracy. There is dearth need to evaluate the role of OBG journals through more systematic studies on reporting and publication characteristics in order to encourage Evidence-based OBG practice, education and research.

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5. Roach VJ, Lau TK, Ngan Kee WD. The quality of citations in major international obstetrics and gynecology journals. *Am J Obstet Gynecol*. 1997; 177(4): 973-5.

Guidelines for Authors

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Standard journal article

[1] Flink H, Tegelberg Å, Thörn M, Lagerlöf F. Effect of oral iron supplementation on unstimulated salivary flow rate: A randomized, double-blind, placebo-controlled trial. J Oral Pathol Med 2006;35:540-7.

[2] Twetman S, Axelsson S, Dahlgren H, Holm AK, Källestål C, Lagerlöf F, et al. Caries-preventive effect of fluoride toothpaste: A systematic review. Acta Odontol Scand 2003;61:347-55.

Article in supplement or special issue

[3] Fleischer W, Reimer K. Povidone iodine antisepsis. State of the art. Dermatology 1997;195 Suppl 2:3-9.

Corporate (collective) author

[4] American Academy of Periodontology. Sonic and ultrasonic scalers in periodontics. J Periodontol 2000;71:1792-801.

Unpublished article

[5] Garoushi S, Lassila LV, Tezvergil A, Vallittu PK. Static and fatigue compression test for particulate filler composite resin with fiber-reinforced composite substructure. Dent Mater 2006.

Personal author(s)

[6] Hosmer D, Lemeshow S. Applied logistic regression, 2nd edn. New York: Wiley-Interscience; 2000.

Chapter in book

[7] Nauntofte B, Tenovuo J, Lagerlöf F. Secretion and composition of saliva. In: Fejerskov O, Kidd EAM, editors. Dental caries: The disease and its clinical management. Oxford: Blackwell Munksgaard; 2003. p. 7-27.

No author given

[8] World Health Organization. Oral health surveys - basic methods, 4th edn. Geneva: World Health Organization; 1997.

Reference from electronic media

[9] National Statistics Online—Trends in suicide by method in England and Wales, 1979-2001. www.statistics.gov.uk/downloads/theme_health/HSQ20.pdf (accessed Jan 24, 2005): 7-18. Only verified references against the original documents should be cited. Authors are responsible for the accuracy and completeness of their references and for correct text citation. The number of reference should be kept limited to 20 in case of major communications and 10 for short communications.

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