

Influence of Mode of Delivery on Maternal Postpartum Anthropometry in Federal Medical Centre Owerri, Nigeria.

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Abstract: Background: Many Studies Have Been Carried Out To Establish Possible Factors That May Affect Or Influence Weight Changes In The Immediate And Long Term Postpartum Period. Likewise, The Comparison Of Non-Obstetric Benefits Of Vaginal Delivery (VD) And Abdominal Deliveries (AD) Using Parameters Such As Hospital Stay, Cosmetics, Sexual Function, Urinary Incontinence Etc. Though Vaginal Delivery Is Accepted As The Safest Mode Of Delivery, However With Increased Safety Profile Of Caesarean Delivery, Its Incidence is On The Increase Partly Due To Preference By Pregnant Mothers Based On Certain Perceived Advantages. **Aim:** We Tried To Establish If There Was A Relationship Between Weight Loss And Mode Of Delivery By Comparing short Term Postpartum Anthropometric Changes Of A Group Of Mothers Who Had Abdominal Delivery (AD) And Another Group Who Had Vaginal Deliveries (VD) After Six Weeks Of Delivery. **Subject And Methods:** A Total Of 46 Women Who Had Uncomplicated Elective Abdominal Delivery And Another 26 Women Who Had Uncomplicated Vaginal Deliveries Were Analyzed. The Average Weight loss (WL), From 24 hours Of Delivery To Six Weeks Postpartum, Of Women In The Two Groups were Obtained as Well As Mean Changes In The Mid Arm Circumference (MAC), Mid Thigh circumference (MTC), Waist Circumference (WC) And Hip Circumference (HC). Data Analysis And Entry Were Done Using SPSS Viewer (13), With P Value Of <0.05 Was Considered As Significant. **Results:** The VD Group Recorded Higher Mean Values For WL, MTC And HC While The AD Group Had Higher Mean Values For MAC And WC, However, There Was No Significant Differences In WL, MAC, MTC, WC And HC For Both Groups With P Values 0.933, 0.989, 0.186, 0.384 And 0.637 respectively. **Conclusion:** There Was No Observed Short Term Influence Of Mode Of Delivery On Postpartum Weight Reduction And As Such May Not Be Considered A Non-Obstetric Benefit Of Either Vaginal Delivery Or Abdominal Delivery.

Keywords: Mode Of Delivery, Weight Loss, Maternal Anthropometry, Nigeria.

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I. Introduction

Caesarean section (CS) is one of the oldest and the most commonly performed obstetric operation in the world with over a third of women in many developed countries undergoing CS when they give birth¹. The incidence of caesarean delivery is increasing as currently reported. It constitutes about 25% of all deliveries in many countries^{1,2}. Studies from other centers in Nigeria have reported rates ranging from 10.3% to 34.5%, with private medical centers reporting relatively higher rates³⁻⁶. The increasing use of CS as a mode of delivery is due to improved safety of the procedure as a result of increasing use of antibiotics, blood availability, and improved anesthetic techniques⁷. The National Sentinel Caesarean Section Audit report notes that studies report rates of maternal request ranging from 1.5 per cent to 48 per cent⁸. A growing number of women are requesting delivery by elective cesarean section without an accepted "medical indication," and physicians are uncertain how to respond⁹. Maternal request is said to have contributed to the increasing CS rates. Studies in Australia, Eire, Sweden and the UK have shown rates from 1.5 to 28%⁸. Some of the perceived reasons for the preference to CS include reduced risk of urinary incontinence, which is a common postpartum problem⁹. Other maternal benefits from cesarean delivery include avoidance of labour pain, alleviation of fear and anxiety related to labour or birth^{10,11}. Some women may just prefer the convenience and control of being able to plan the precise timing of the birth. It has been proposed that maternal request for CS has been a factor contributing to the observed increases in CS rates⁸. The risk of an unexplained or unexpected stillbirth may be reduced by cesarean section, as may be the risk of complications of labour such as clinical chorioamnionitis, fetal heart rate abnormalities and cord prolapse¹². This may form the basis a woman to opt for CS if she had a previous unexplained still birth. Pregnancy is associated with weight gain which, most times, becomes a point of concern to mothers especially during the postpartum period. The high prevalence of obesity in women may be, in part, a function of

pregnancy, as pregnancy is a time during which a woman's weight increases considerably¹³. Childbirth is associated with weight increases beyond the term of the pregnancy¹³⁻¹⁶. However, the amount of weight retained after pregnancy is highly variable^{13,17}. In a study by Zanotti et al., higher parity, interpregnancy interval, calorie intake, pre-pregnancy body mass index (BMI), weight gain related to pre-pregnancy BMI, presence and severity of depression, and lack of exclusive breastfeeding were directly associated with lower weight¹⁸. Iheukwumere and co found no significant effect of inter-pregnancy interval on postpartum maternal weight loss, and as such, its modification may not contribute to the prevention of obesity and its associated complications¹⁹.

II. Subjects and methods

Study design: This study was conducted in Federal Medical Center Owerri (F.M.C.O), Imo State of Nigeria. 50 Subjects who had been counseled for elective abdominal delivery, were selected from the antenatal clinics while another 50 women who had no complications following vaginal delivery were selected from the postnatal ward. They were duly counseled and written informed consent obtained. The study protocol and consent form were approved by the ethical and research committee of Federal Medical Center Owerri. The antenatal care cards were retrieved, reviewed and relevant information such as age, parity, inter-pregnancy interval, birth plan, booking date for elective surgery as earlier discussed with them by their care giver and also, the delivery notes of those who had vaginal delivery were equally reviewed.

Eligibility and exclusion criteria: To be eligible, a participant had to be pregnant, at least 18 years of age, completed secondary school education and in third trimester. They had to be non-smokers, and not on any medications which could affect their body composition such as steroids. They must also have abstained from alcohol during the period of pregnancy. Exclusion criteria also included medical or obstetric complications during pregnancy and delivery such as hypertension, pre-eclampsia, eclampsia, sickle cell disease, tuberculosis, gestational diabetes etc. Participants must have had a successful vaginal delivery or abdominal delivery as the case may be and without any immediate intrapartum or postpartum complications.

Body composition Measurements: Body composition measurements were conducted 24 hours of delivery to ensure that postoperative patients were freely ambulant, and during the 6 weeks postnatal visit. Each participant's weight was measured wearing minimal clothing and without shoes or jewelry on the body. Weight was measured to the nearest 0.1Kg with heightometerRGZ-120 Health scale which is a calibrated weighing scale. The mid arm, mid-thigh, hip and waist circumferences were measured with a butterfly brand measuring tape to the nearest 0.1 cm at delivery and during the six weeks postpartum hospital visits.

Statistical analysis: Data entry and analysis were done using SPSS viewer (15.0). Descriptive statistics such as mean, standard deviation (SD) analysis was carried and t test analysis was performed to check for significant differences. P value of <0.05 was used as a criterion for reporting statistical significance.

III. Results

Sample size and categories: Of the 50 women selected for the AD group, 46 presented to the postnatal clinic thus 2 subjects were lost to follow up from this group while 1 subject developed post-operative complications. For the VD group, two subjects developed post-delivery complications after initial anthropometric measurements were taken while 22 subjects did not present at their scheduled six weeks postnatal visit.

Anthropometric changes: Subjects in both groups recorded a reduction in all the parameters examined in the study. For the vaginal delivery group, the mean of Weight loss (WL), Mid Arm Circumference (MAC), Mid-Thigh Circumference (MTC), Waist Circumference (WC) and Hip Circumference (HC) were 5.43kg, 1.21cm, 1.10cm, 0.86cm and 1.47cm respectively while the abdominal delivery group were 5.38kg, 1.21cm, 0.71cm, 1.13cm and 1.34cm respectively. In comparing both groups, there were no significant differences in anthropometric changes with the p values for WC, MAC, MTC, WC and HC being 0.933, 0.989, 0.186, 0.384 and 0.637 respectively.

IV. Discussions

The postpartum care visit may be utilized to counsel mothers on infant care and family planning, encourage breastfeeding, identify and treat medical conditions common to the postpartum period, and manage preexisting or emerging chronic conditions²⁰. Findings from this study show that women who had abdominal delivery tend to adhere to their postnatal hospital visits more than women who had vaginal delivery. Various studies have analyzed possible barriers to adherence of postnatal care. Logistical barriers such as inaccessible transportation, long waits during appointments, and lack of child care further limit the likelihood of a postpartum visit²¹. Possible reasons for high level of adherence to postnatal visits among the AD group may be attributed to strong desire for reassurance concerning their postoperative state and the desire for effective contraception in order to allow ampoule time for wound healing thus reducing the risk of short inter-pregnancy interval which may increase chances of a repeat abdominal delivery especially in those who had non-recurrent

indications for abdominal delivery in the index pregnancy. The possibility that women who had abdominal delivery may likely have more complaints, relating to their surgery, than those who had vaginal delivery could also be a reason for higher compliance to post natal hospital visit among this. Both abdominal delivery and vaginal delivery are associated with catabolic processes especially in the immediate post-delivery. Hunter, in 1954, followed by Culbertson and Moore, identified the fact that a wound being a threat to human existence takes preference for the available nutrients to heal, especially amino acids, at the expense of the host lean body mass (LBM)²²⁻²⁵. This process leads to an autocannibalism of available LBM to obtain the necessary amino acids for the required protein synthesis in the wound²⁵. One may expect that the extra boarding of wound healing could, to a significant degree, lead to an increase in LBM of women who had CS. However, our findings reveal that mode of the may not significantly affect postpartum weight loss and other maternal anthropometry at six weeks following delivery this may be attributed to quick recovery and assumption of normal activities of daily living which includes adequate feeding. Improved safety of the procedure as a result of increasing use of antibiotics, blood availability, and improved anesthetic techniques⁷ may equally lead to very quick recovery rates. Based on available findings, postpartum weight loss or loss of pregnancy weight may not be considered a benefit of abdominal delivery over vaginal delivery and should not in any way be perceived as a cogent reason for abdominal delivery based on maternal request.

V. Conclusion

Loss of pregnancy weight should not be considered a benefit of abdominal delivery among other perceived benefits as stated earlier and should not be a factor to consider by the growing number of women who desire caesarean section based on “maternal request”. Results from this study is also of public health importance due to the relatively reduced compliance to postnatal hospital visit noted among women who had vaginal delivery as this limits them from the numerous benefits of postnatal care as earlier stated.

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