THROMBOPROPHYLAXIS;
PREGNANT WOMEN WITH HIGH BODY MASS INDEX

ORIGINAL
PROF-1880

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ABSTRACT...Maternal obesity (body mass index, BMI ⩾ 30kg/m²) is a global health problem. Significant evidence is available that it is directly associated with an increased risk of venous thromboembolic events in pregnancy and puerperium. **Objective:** This study aims to assess our current management protocols for thromboprophylaxis and to improve them according to guidelines recommended by The Royal College of Obstetricians and Gynecologists (RCOG). **Design:** Retrospective study. **Period:** September 2005 to December 2006. **Method:** In this study we did a retrospective first audit cycle to evaluate the existing thromboprophylaxis management in women with high BMI (⩾ 30) in our hospital. The aim was to check our compliance with RCOG recommendations and to introduce change in accordance with RCOG guidelines. **Results:** In first loop of audit cycle 120 pregnant women with BMI of more than 30 were evaluated.52 (43.3%) of them had no objective assessment done during antenatal period with no instructions regarding thromboprophylaxis. 3 of these patients developed Deep vein thrombosis (DVT). Change in practice was introduced based on findings of first loop of audit. In re-audit 120 pregnant women were reviewed with BMI of ⩾ 30. Ninety eight(81.6%) women received Thromboprophylaxis, 22 (18.3%) did not receive thromboprophylaxis, none of them had any thrombotic or embolic complications. **Conclusions:** Detailed objective assessment of obese pregnant women for thromboprophylaxis should be implemented in our clinical practice according to the recommendations of NICE and RCOG guidelines.

Key words: Maternal obesity, Thromboprophylaxis

INTRODUCTION

Pulmonary embolism (PE) remains the leading direct cause of maternal mortality in United Kingdom (1.56 / 100,000) maternities and second most common cause of maternal death overall (11% maternal deaths). Most Pulmonary embolisms are preventable with appropriate thromboprophylaxis[1]. According to Confidential Enquiries into Maternal deaths, there has been a failure in recognizing the risk factors which contributes to venous thromboembolism (VTE). Among the risk factors identified from individual case analysis of 33 maternal deaths from venous thromboembolism (2003-2005) 16 women were obese with body mass index ⩾ 30. All patients affected in third trimester were overweight[1].

One of the most important factors in terms of prevalence in our society is high Body Mass Index (BMI). Pregnancy further increases the risk of VTE. There has been a significant increase in number of pregnant women who are obese. A BMI of ⩾ 30 significantly increases the risk of thromboembolism. Caesarian section further increases the risk. Due to high risk of thromboembolism in obese pregnant women we did an audit of our Obstetric Department to evaluate the compliance with The Royal College of Obstetricians and Gynecologists UK (RCOG) recommended guidelines for thromboprophylaxis in pregnant women with high BMI.

METHODS

This is a retrospective study. First Aduit was started in September 2005 and second loop of this audit was completed in December 2006. Aim of this study was to conduct an audit cycle to assess Obstetricians compliance with the RCOG guidelines for thromboprophylaxis in women with high body mass index and to introduce changes in the clinical practice based on observations of this audit and to re-audit Obstetrician practice after implementing the RCOG guidelines.

The audit was registered with local hospital audit committee .We did a retrospective study of thromboprophylaxis practice in 120 pregnant women with high BMI (⩾30) over a 6 month period.

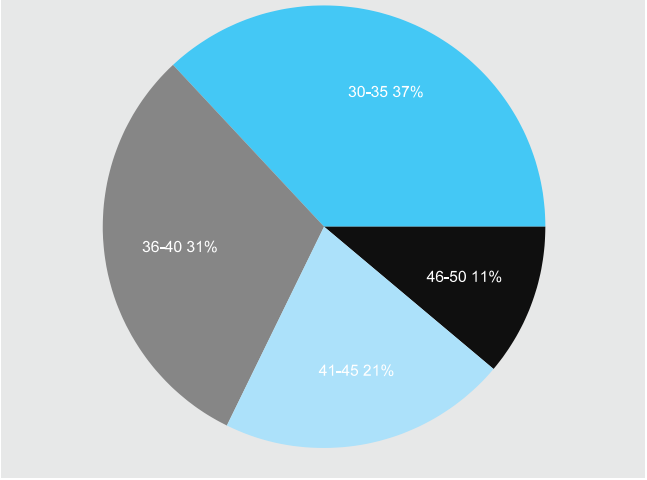
Patients were given Low Molecular weight Heparin (LMWH) once daily post Caesarean in a dose of 0.5-0.6mg/kg body weight for 5 days. Patients who developed DVT or Pulmonary embolism were noted down.

RESULTS

FIRST AUDIT CYCLE

Clinical notes of 120 pregnant women with BMI of ⩾ 30 were reviewed who had Caesarean section. Distribution of their BMI were recorded (Figure: 1). 45 out Of 120 Women were more than 35 yrs old. 68 (56.6%) women had proper risk assessment during their antenatal period and have been given LMWH. 52 (43.3%) women had no objective assessment done during antenatal period and had no documentation regarding thromboprophylaxis. 3 women developed Deep Venous Thrombosis (DVT). 15(12.5%) Women had delay in starting thromboprophylaxis treatment because of lack of documentation in antenatal records but did not have any problems. None of these patients developed pulmonary embolism.

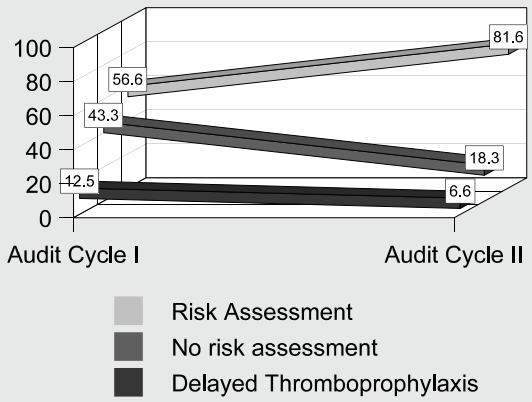
Fig-1. BMI of women in the audit group



SECOND AUDIT CYCLE

Changes in practice were introduced based on findings of first loop of audit. Obstetricians were asked to complete the check list at booking visit in antenatal clinic to assign patient risk category. Prophylaxis was prescribed based on risk assessment. Following the introduction of this change in practice we re-audited 120 women (Figure:2) . In this group 98 (81.6%) women received prophylaxis, 22 patients (18.3%) did not receive any thromboprophylaxis, 8(6.6%) patients had delayed in initiation of treatment. None of these patients had any thrombotic or embolic complication.

Fig-2. Comparison of Thromboprophylaxis in the audit group.



Risk Assessment	56.6	81.6
No risk assessment	43.3	18.3
Delayed Thromboprophy>	12.5	6.6

DISCUSSION

According to RCOG guidelines all women should undergo a documented risk assessment for VTE in early pregnancy[2]. Women of age more than 35 yrs, BMI more than 30 and body weight Greater than 80 kg are important risk factors for postpartum VTE not only after caesarian section but also after vaginal delivery. If there are other co-existing risk factors such as diabetes, hypertension, immobility, caesarian section, it further increases the risk. Obesity was highlighted in recent Confidential Enquiry into Maternal and Child Health (CEMACH) report, Saving mothers' Lives 2003-2005, as one of the greatest and growing overall threats to the UK Childbearing population[10,11,12,13]. 5% of women who died from direct and indirect causes had a BMI of 35 or over with half of these having a BMI exceeding 40.A further 12% of women had a BMI in the range of 30-34 and 24% had a BMI of 25-29. Maternal obesity is quickly emerging as a major health issue in developed world; risks of adverse maternal and fetal outcome are also increased. For example, obesity in pregnancy is

associated with an increased risk of gestational diabetes[3] , hypertensive disorders of pregnancy[4] , prolonged pregnancy[5] , induction of labor , caesarian section[6], greater risk of miscarriage[7], increased stillbirth and neonatal death rate[8]. Suggested thromboprophylaxis by RCOG guidelines in antenatal and postnatal period is Low Molecular Weight Heparin (LMWH).

It is noted that in UK Obstetric Surveillance System (UKOSS) antenatal pulmonary embolism study[9] some women who were overweight suffered from pulmonary embolism while receiving dose of LMWH appropriate for women weighing 50-90kg. It is agreed that women of higher weight should receive higher doses but appropriate doses and weight ranges are not agreed. Some units may prefer to prescribe usual prophylactic dose twice daily for women over 90kg.According to World Health Organization International Obesity Standards, young women with BMI greater than 40kg/m^2 (class 3 obesity) should be offered thromboprophylaxis with LMWH postpartum even after normal delivery and in the absence of other risk factors[14,15].

CONCLUSIONS

Importance of meticulous screening of risk factors in early pregnancy cannot be overemphasized. It is important to make an individual risk assessment, since occasionally one risk factor may be significant enough without the presence of other risk factors. Detailed objective assessment according to the recommendations of NICE and RCOG / CEMACE guidelines are to be implemented in clinical practice in order to avoid serious morbidity and mortality associated with thromboembolism. Antenatal care should also include postnatal weight management advice which will enable subsequent pregnancies to be started at lower BMI. The need for focused training of health professionals is also important in order to avoid failures in recognizing risk factors which predispose to thromboembolism. There is an urgent need to develop local protocols regarding appropriate dosages of LMWH according to the body mass index which can be reviewed and adjusted.

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Gratitude is not only the greatest of virtues, but the parent of all others.

Cicero (106 BC - 43 BC)