



GYNAE SPECTRUM

Dear Doctor,
Greetings from Micro Labs. We are happy to bring you “Gynae Spectrum”, which contains latest and interesting news in the field of Obstetrics and Gynecology.

This issue contains:

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Looking forward to your valuable feedback.
Best Regards,
Medical Team, Micro Labs Limited



A study to predict Human Chorionic Gonadotropin rise in pregnancies with uncertain viability

Introduction –

Serum β -HCG (Human chorionic gonadotropin) level increases over time after the embryo implantation and continues to increase rapidly in early stages of pregnancy². Higher levels of β -hCG are associated with improved clinical outcomes and live birth. Early diagnosis of adverse pregnancy outcomes (APOs), such as miscarriage and ectopic pregnancy (EP), helps to prevent further damage to women³. Around 10-30% cases of Intrauterine pregnancy, early pregnancy loss or ectopic pregnancy are unable to differentiate in ultrasonography¹. The study aimed to evaluate performance of HCG threshold model to classify pregnancies and to compare the new model with three established model.

Human chorionic gonadotropin levels helps in classifying pregnancies and reduces the risk of incorrect diagnoses

Methods –

This study was a single-center, retrospective cohort study. A total of 688 patients were included in this study out of which 167 (24.3%) had viable intrauterine pregnancy, 463 (67.3%) had early pregnancy losses and 58 (8.4%) had ectopic pregnancy. Study participants included patient who presented with pregnancy of unknown viability, who had at least two consecutive quantitative HCG serum levels with an initial level greater than 2 milli-international units/mL and 5,000 milli-international units/mL or less, with the first interval between laboratory draws being no longer than seven days and who had confirmation of final pregnancy outcome.

Results –

Results of this study showed that 9 intrauterine pregnancies (5.4%) were mislabeled as abnormal pregnancies in established models of the minimum hCG rise for a viable intrauterine pregnancy. Up to 58 early pregnancy losses (12.5%) and up to 26 ectopic pregnancies (44.8%) were mistakenly categorized as potentially normal pregnancies in established model. Both the 4-day and 6-day rates of misclassification for intrauterine pregnancies were significantly different from the linear model, but not from the other two recognized models. The 4-day model's misclassification rate for ectopic pregnancies was 24.1%, which was considerably higher than the rate for the minimal increase model alone. In 4 day of new model 14(24.1%) of ectopic pregnancies and (44)9.5% of early pregnancy losses were misclassified. In the new model 6days misclassification rate of 9(12.1%) ectopic pregnancies and 25(5.6%) early pregnancy loss was statistically better than all three models(fig.1). When comparing with sensitivity analysis which includes known values of HCG, misclassification rates were lower in new model.

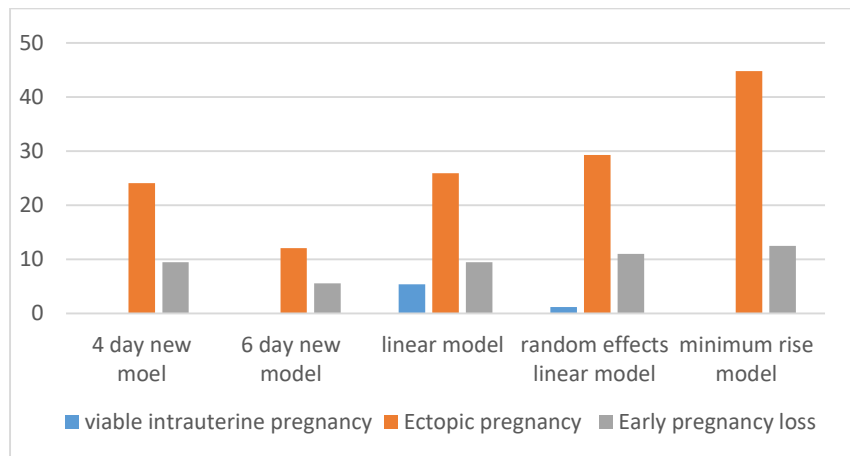


Fig.1- comparison of incorrect diagnoses among different models

Discussion –

The present study compared the new model with the three established model in classifying the viable intrauterine pregnancies, early pregnancy loses and ectopic pregnancies using the HCG levels. Three established model showed increased misclassification of ectopic and early pregnancy loses as normal pregnancies. New model identified 100% of viable intrauterine pregnancies and showed lower rates of misclassification of early pregnancy loses¹. A study by Xu H et al., established a model to evaluate the risks of ectopic pregnancy based on HCG levels. The results of misclassification rates were 0.038 and 0.045 in training and validation sets. Hence the study helped to lower the risk of ectopic pregnancies³.

Conclusion –

The study concludes that the proposed new model optimizes the misclassification for all pregnancy subgroups and simultaneously reduces risks associated with misdiagnosis.

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A study to evaluate the impact of remote blood pressure monitoring program on postpartum adverse outcomes

Introduction –

Hypertension during pregnancy are associated with significant risk of postpartum morbidity and mortality. Peak in blood pressure is seen during first week after delivery, especially during 3-7 days postpartum¹. Hypertension affects approximately 10% of pregnancies and may persist in the postpartum period. The mother's hypertension eventually puts her at risk for serious problems like eclampsia, stroke, pulmonary edema, and the HELLP (hemolysis, elevated liver enzymes, low platelet) syndrome². The study aims to identify association of remote blood pressure monitoring with adverse postpartum hypertension during pregnancy.

Remote blood pressure monitoring reduces the risk of postpartum blood pressure and readmissions to the hospital.

Methods –

This is a retrospective cohort study carried out on patients diagnosed with a hypertensive disorder during pregnancy. Two cohort group's, an asynchronous cohort (cohort A) consisting of patients at hospital before remote monitoring program implementation and contemporaneous cohort (cohort C) of patients who met the program's inclusion criteria were compared to patients who were enrolled in twice-daily text-based blood pressure monitoring for 10 days postpartum. A total of 1700 patients were included to remote blood pressure monitoring program and were compared with 1021 patients in cohort A and 1276 patients in cohort C. After the delivery, claims for adverse clinical outcomes were evaluated. The utilization of health care services and total medical expenses was also evaluated.

Results –

Patients enrolled in remote monitoring had a lower risk of the composite adverse outcome within the first 6 months after delivery than patients in cohort A and cohort C. When compared to the two comparison cohorts, the remote monitoring group had fewer adverse events, postnatal emergency department visits and readmissions and more cardiology visits. Remote program patients had 31.9% more cardiology visit than cohort A and 41.7% in cohort C. The program cohort saw overall lower total medical costs as a result of lower ED(Emergency department)visits and readmissions(fig.1).

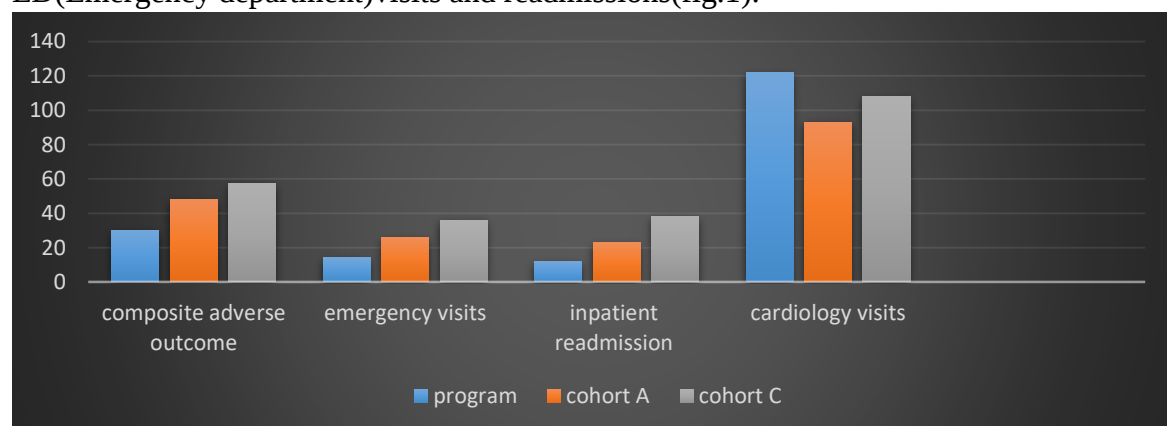


Fig.1 – comparison of program, cohort A and cohort C groups



Discussion –

Present study data showed that compared to patients in either comparison cohort, those enrolled in a postpartum remote blood pressure monitoring program had a lower risk of a adverse clinical outcome within the first six months after delivery. Compared to both comparison cohorts, program participants also had fewer ED visits and readmissions, resulting in lower total postpartum medical costs¹. A study by Hoppe KK et al., compared patients with postpartum hypertension between 2 groups which include a telehealth with remote BP monitoring group and standard outpatient care patients. The results showed that patients in telehealth group had reduction in hospital readmissions and had minimum one BP measured within 10days³. Another study by Thomas NA et al., conducted a survey on patient's perceptions, opinions and satisfaction of telehealth and the results showed that telehealth remote intervention was safe, easy to use method for postpartum women to monitor blood pressure⁴.

Conclusion –

A remote blood pressure monitoring program reduced the risk of adverse outcomes in the first six months following delivery. When compared to the two control cohorts, postpartum total medical costs were lower because of fewer ED visits and readmissions

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A study on reducing urinary tract infection in female pelvic surgery

Introduction –

Urinary tract infections (UTIs), are among the most prevalent bacterial infections among women. UTIs are frequently linked to problems with the pelvic floor, and the perioperative incidence of UTIs following pelvic reconstructive surgery ranges from 7% to 34%¹. Due to the structure of the female lower urinary system and its closeness to the reproductive organs, women are significantly more susceptible to UTIs than men². The study aimed to identify UTIs before and after bundle adoption.

Bundle of care demonstrates a better result in reducing the rate of urinary tract infections.

Methods –

This is a retrospective cohort study carried out on 93 post bundle patients. Inclusion criteria were clean-contaminated pelvic reconstructive surgeries with prolapse and urinary incontinence as an indication. Two weeks before and six weeks after surgery, a urine culture shows a positive result for a UTI (≥ 100000 colony forming unit /ml). Bundle of care includes urine culture 2 week's prior surgery with antibiotic treatment, discharge home with indwelling catheter, urine culture, daily oral cranberry supplements. The results of the study were compared with 204 pre-bundle inpatient charts.

Results –

In the post bundle cohort, two patients (2,2%) were taking a prophylaxis antibiotic, and six (6,5%) had a culture-proven UTI two weeks before surgery. Antibiotic therapy was provided to all 6 patients for 3.8days. 21 patients (22.6) with an indwelling catheter discharged home. cranberry extract was recommended to all patients for six weeks post-operatively. After implementing the bundle, the rate of postoperative UTI decreased from 17.6% in the pre-bundle group to 6.5 percent ($P=0.01$). The pre-bundle likelihood was 0.13–0.98, and the 95 percent confidence interval (CI) for the post-bundle likelihood of UTI was 0.35; $P=0.045$). On the first day following surgery, considerably more post-bundle patients (76.3% vs. 37.7%) were discharged home than pre-bundle patients.

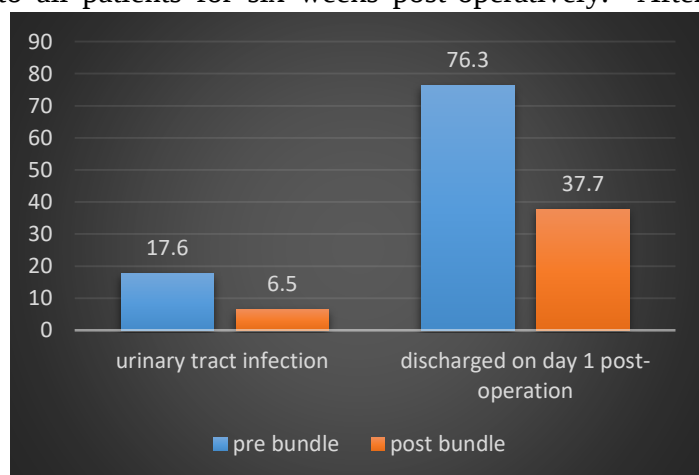


Fig.1 comparison of pre-bundle and post-bundle care



Discussion –

After clean-contaminated pelvic reconstructive surgery, present retrospective cohort study found that implementing a clinical bundle significantly reduced post-operative UTI rates and length of stay for inpatients¹. A similar type of study by Thibault MD et al., used interventions such as perioperative cranberry use, intraoperative protocols for catheterization, and post-operative protocols for urinary retention management showed 50% reduction in UTIs³. Another study provided the information that UTIs are common during the first 6 weeks after pelvic surgery⁴.

Conclusion –

The study concludes that bundle care strategy significantly lowers the rate of post-operative UTIs and number of hospital stay days after clean contaminated pelvic surgery.

References –

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A case on Cervical endometriosis during pregnancy

Introduction –

Endometriosis affects about 15% of women of reproductive age. Cervical endometriosis cases have a documented prevalence of 0.11-2.4%, which is highly uncommon¹. Endometriosis is a neuro-inflammatory condition that causes chronic, debilitating pain in the pelvis. Up to 50% of women seeking treatment for infertility have lesions associated with endometriosis, and these lesions can be found in women who are asymptomatic². The study presents a case on 33-year-old pregnant lady with cervical endometriosis who presented with post-coital haemorrhage in the first trimester of her pregnancy.

Pregnancy-related bleeding from cervical endometriosis is extremely rare. Clinicians should perform thorough pelvic examination.

Case presentation –

A 33-year-old patient presented for her first prenatal visit at a gestational age of 12 weeks and 6 days. Pelvic examination revealed significant bleeding from a mass in the vagina. Since the beginning of her pregnancy, the patient admitted to having experienced numerous episodes of post-coital bleeding. The cervical os was completely occluded by a 6 cm x 5 cm soft, friable mass discovered during evaluation (Figure 1).



Fig.1- pelvic examination showing large cervical mass

The majority of cervix was not visible. Because of bleeding from the mass, vaginal packing was done. Later the packing was taken off, and the bleeding slightly stopped. After obtaining the patient's consent, biopsies were taken, and Monsel solution (Ferric subsulfate solution, a hemostatic agent) was used for hemostasis. After an hour of observation, the patient was discharged from the hospital when the bleeding significantly subsided. Biopsy test revealed Endometriosis. Patient reported recurrent vaginal spotting until 20 weeks of gestation. The



patient reported no more episodes of vaginal bleeding after 20 weeks of pregnancy. A following speculum examination showed that the mass had significantly receded, had become confined to the right side of the cervix, and that more of the cervix was now visible. With the speculum examinations, there was no bleeding. At 33 and 36 weeks' gestation, the patient complained of uterine contractions, so she presented twice to the labor and delivery triage. In order to determine cervical dilatation, gentle vaginal examinations were performed, and the pelvic exam did not result in any bleeding. The patient was advised to try a vaginal delivery. At 39 weeks of pregnancy, the patient had a successful vaginal birth without any bleeding from the mass. The patient reported feeling well and returning to her daily activities at a 6-week postpartum visit. The endometriosis had completely disappeared during the pelvic examination.

Discussion –

In the present study the patient diagnosed with the endometriosis during the 12th week of gestation had a bleeding in the vagina. Later after 20 weeks there was no complaints of bleeding and the patient underwent normal vaginal delivery during the 39 week of pregnancy. After 6 week of postpartum endometriosis disappeared¹. A case report of 29 week's gestation patient was presented with abdominal pain and diagnosed with 9cm of mass in uterine cavity. The patient in her pre-term underwent advanced cervical dilation and endometrioma was removed successfully. This case provides an information that endometriosis can present in various ways leading to delay in diagnosis and treatment³.

Conclusion –

This case demonstrates importance of thorough pelvic examination on patients who presented with bleeding during pregnancies. Pregnancy-related bleeding from cervical endometriosis is extremely uncommon.

References –

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