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Determinants and Complications of High Risk Pregnancy at the Ministry of
Health clinics in Hebron District

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Abstract

The incident of Gestational Diabetes Mellitus (GDM) and Hypertension disorders during pregnancy (HDP) are increasing and are associated with adverse pregnancy outcome. Appropriate prenatal and postnatal follow up care was shown to control and reduce the adverse health outcomes of high risk pregnancies on mothers and their children if done properly.

Study aim and objectives: This study aims to evaluate antenatal and postnatal care for pregnant women with GDM and HDP at the MOH clinics in Hebron district for the year 2009 and to identify the determinants of prenatal and postnatal management of the adverse maternal complications related to GDM and HDP.

Methodology: In the first part of the study, all files of registered women at the main six HRP clinics were included in order to have an estimate of the prevalence of the high risk pregnancy disorders, i.e. diabetes and hypertension. In the second part of the study, all women's files with GDM and/or HDP were included (60 women). In addition, 60 women's files were randomly selected from the same clinics for reasons other than HDP or/and GDM as comparative group. All the 120 women were interviewed face-to-face or through a phone call using a pre prepared questionnaire.

Results: 41.7% (n=25) of cases had GDM, 40.0% (n=24) had HDP and 18.3% (n=4) had both in pregnancy. In total, 68% of GDM cases continued to have diabetes after delivery, 70% of HDP continues to have hypertension, and 72% of having both continues to have diabetes and hypertension. Of the 60 cases, 25 women (43.1%) did not visit a doctor after delivery, of which 28.6% were found to still having GDM, 42.9% continued to have HDP and 28.6% had both.

After delivery, 8.8% of cases and comparison group went to the general clinics. Only 1.8% of the 120 women went with coordination or appointment with medical staff during pregnancy and only 1.8% of women received advice or guidance about the need for postnatal follow up after delivery. None of the cases had OGTT, urine test, or lipid profiling. In addition, cases were more prone for hospitalization compared to the comparison group during pregnancy.

We found significant differences of complications between cases and the comparison groups, not only for complications related to diabetes and hypertension such as vision problems, nephropathy, retinopathy, placental rapture, pre-eclampsia, stillbirth and cardiac problems which were only seen among cases. But also, other minor complications were seen such as back pain, hyperthyroidism, and anemia, and vaginal bleeding at birth.

Cases' infants suffered from all complications in higher percentage than the comparison group including hypoglycemia, deficiency in Hb neonatal jaundice, disorder in the degree of temperature, low oxygen at birth, congenital malformations, stillbirth and early neonatal death. Of cases' infants 3.4% had diabetes, and 60.3% of cases' infant and 42.4% of comparison group's infants have been seen by private doctor.

This study showed the importance of setting up services for postpartum monitoring and follow-up for women and their infants at the MOH clinics. More research is needed at the national level for all pregnancy related antenatal disorders. These studies are needed for the development of strategies and protocols that deals with these disorders among pregnant women and their children.

ملخص الدراسة

ازداد حدوث حالات ارتفاع سكر و ضغط الحمل وما يصاحبهما من مضاعفات على صحة الأم وطفلها. مع العلم المتابعة الجيدة والمستمرة قبل الولادة وبعدها من شأنها تخفيف نسبة هذه المضاعفات إذا تمت بالشكل الصحيح.

هدفت الدراسة إلى وصف وتقييم خدمات الرعاية الصحية المقدمة للحوامل في عيادات الحمل الخطر في عيادات الرعاية الأولية الحكومية في محافظة الخليل للعام 2009. بالإضافة إلى تقييم مدى تأثير هذه الخدمات على نتائج الحمل بالنسبة للإصابة بسكري الحمل أو ضغط الحمل أو كلاهما.

تم اختيار عينة الدراسة على مرحلتين: في المرحلة الأولى تم دراسة أسباب تحويل السيدات الحوامل والتي تم تسجيلها في 6 عيادات رئيسة للحمل الخطر في المحافظة خلال العام 2009 من خلال ملفات العيادات. أما في المرحلة الثانية فقد تم اختيار جميع السيدات اللواتي تم تشخيصهن بالإصابة بسكري و/أو ارتفاع ضغط الدم في العام 2009 (العدد= حالة) كمجموعة أولى للدراسة بالإضافة إلى اختيار عينة عشوائية من ملفات النساء المسجلات في نفس عيادات الحمل الخطر ولكن لأسباب أخرى غير السكري وضغط الدم المرتفع في نفس العام كمجموعة ثانية مقارنة (العدد=60 حالة).

أظهرت النتائج أن 41.7% من المجموعة الأولى قد تم تشخيص سكر الحمل لديهن و 40% عانين من ارتفاع ضغط الدم و 18.3% عانين الاثنتين معا. بعد الولادة، أظهرت النتائج أن 68% من النساء اللواتي عانين من سكر الحمل استمر لديهن ارتفاع سكر الدم، و 70% من النساء اللواتي عانين من ارتفاع ضغط الدم في الحمل عانين من استمرار ارتفاع ضغط الدم، كما أن 72% من اللواتي عانين من المرضين معا في الحمل استمرت معاناتهن من المرضين معا الولادة. من ضمن المجموعة الأولى، فإن 25 سيدة (43%) لم يتابعن ولم يعلمن باستمرار وجود مرض السكري ارتفاع ضغط الدم لديهن بعد الولادة أم لا، حيث وجد أن 28% منهن قد استمر وجود السكر المرتفع لديهن، 9% منهن استمر ارتفاع ضغط الدم لديهن، و 28% منهن استمر لديهن وجود ارتفاع السكر و ضغط الدم معا.

وجدنا أيضا اختلافات بين المجموعتين ليس فقط في المضاعفات التي يسببها مرض السكري أو الضغط مثل مشاكل الرؤية، اعتلال الكلية، اعتلال الشبكية، تشوهات المشيمة، تسمم الحمل، ولادة جنين ميت ومشاكل في القلب. و أيضا في مضاعفات أخرى مثل آلام الظهر، أمراض الغدة الدرقية، فقر الدم، والنزيف المهبلية عند الولادة.

كما أظهرت النتائج أن فقط 8.8% من نساء المجموعة الأولى قد تابعن عند الطبيب العام بعد الولادة وان 1.8% ذهبن بالتنسيق مع الفريق الطبي بالعيادة. كما أن 34% من أفراد المجموعة الأولى و 7.1% من المجموعة الثانية استشرن الطبيب في عيادة خاصة بعد الولادة. وأيضا فإن 5.2% فقط من أفراد المجموعة الأولى قد تم وصف علاج لهم عن طريق الطبيب، وحالة واحدة فقط تم تعديل الجرعة الدوائية لها من قبل الطبيب و 5.2% تم تعديل الجرعة الدوائية لها بعد إجراء تحاليل للدم.

أظهرت النتائج أيضا أن نساء المجموعة الأولى قمن بإجراء فحص هيغلوبيين الدم وفحص سكر فترة الصيام بنسبة أعلى مقارنة بنساء المجموعة الثانية على مدار فترة الحمل. أما بالنسبة لمرحلة ما بعد الولادة فقد لوحظ انه لم يتم اختبار تحمل السكر، فحص البول، أو فحص مستوى دهون الدم بعد الولادة لأي من المجموعة الأولى.

أما بالنسبة للمواليد، فقد لوحظ ارتفاع نسبة العديد من المضاعفات بين مواليد المجموعة الأولى مقارنة بمواليد المجموعة الثانية، حيث تبين النتائج أن 3.4% من مواليد المجموعة الأولى عانوا من ارتفاع نسبة السكر لديهم بعد الولادة. كما أن أطفال المجموعة الأولى عانوا من جميع المضاعفات بنسبة أعلى مقارنة بأطفال المجموعة الثانية بما في ذلك نقص السكر في الدم، نقص في الهيموجلوبين، اليرقان، اضطرابات في درجة الحرارة، انخفاض الأكسجين، التشوهات الخلقية، أو الوفاة عند الولادة.

وأيضا تبين النتائج أن 60.3% من أطفال المجموعة الأولى و 42.4% من أطفال المجموعة الثانية قد فحصوا من قبل دكتور خاص بعد الولادة مقارنة ب 5.2% و 1.8% بالترتيب تم فحصهم من قبل طبيب الأطفال في العيادات الحكومية بعد التنسيق مع الفريق الطبي.

خلصت الدراسة، والتي هي الأولى من نوعها في فلسطين، على أهمية إنشاء خدمات لرعاية السيدات الحوامل وأطفالهن خلال فترة ما بعد الولادة في عيادات الرعاية الأولية التابعة لوزارة الصحة. وتوصى وتؤكد على ضرورة إنشاء خدمات لرعاية الحوامل المصابات بمضاعفات الحمل والأخطار المترتبة لمتابعة النساء ليس فقط خلال الحمل وإنما أيضا ما بعد الولادة لهن ولمواليدهن. أما على مستوى الجانب البحثي، فإن الباحثة تؤكد على ضرورة إجراء العديد من الدراسات على المستوى الوطني والتي تستهدف جميع الأمراض المرتبطة بالحمل والخدمات المقدمة لها خلال وما بعد الحمل للعمل على تحضير بروتوكولات الرعاية الخاصة بها للحد من انتشارها أو انتشار مضاعفاتها لدى النساء وأطفالهن.

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Chapter One: Introduction and Background

1.1 Introduction and Background

The childbirth experience is a complex event and an important life experience for women with long term impacts throughout life (Halldorsdottir, 1996). The experience influences the future well being of the women, her child, and their relationship as well as the women's relation with her partner (Oakley, 1983).

Prenatal care is one of the key issues of child bearing since it largely contributes to reduce complication and illness resulting from pregnancy and birth (PCBS, 2007a). Appropriate prenatal management of a very premature fetus or neonate (gestation age less than 34 weeks) is critical factors which will influence the outcome (Fellows and Chance, 1982).

Usually, most pregnancies occur in a very natural manner. However, some are more complex because of antenatal or intrapartum condition that places the mother, the developing fetus or both at higher risk for complication. In addition, other conditions can rise during pregnancy and can threaten the life and health of the fetus or the mother (Haws et al., 2009).

High risk pregnancy percentage is about 15-20% of all pregnancies worldwide and the rate varies according to different societies, different dietary habits and percentage of communicable and non-communicable diseases spread (such as diabetes and hypertension).

In addition, worldwide 70-80% of children, who need intensive care, were born in high risk pregnancy compared with only 20% in normal pregnancy, and this rate is considered high. Also it was proven through several studies that highest mortality rate of fetus or new born was as a results of risk whether simple or sever in women with high risk pregnancy (Bundagji N.S, 2004).

Early identification of high risk pregnancy can theoretically facilitate monitoring, referral and prompt initiation of therapy. Screening and monitoring in pregnancy are strategies used by healthcare providers to identify high risk pregnancies, so that they can provide more targeted and appropriate treatment and follow up care, and to monitor fetal well being in both low and high risk pregnancies (Haws et al., 2009).

In Palestine, primary health care is considered the corner stone of health services. Ministry of Health (MOH) is considered the major provider of primary health care services as it operates 64% of primary health clinics (PHC facilities), where as local NGOS operated 28,4% followed by UNRWA that operates 8,2% of PHC facilities (NSHP, 2008).

Attended care is provided for pregnant women in 252 MCH clinics operated by the MOH and in 51 MCH clinics operated by the UNRWA. The percentage of newly pregnant women visiting the high risk pregnancy in UNRWA clinics was 12,1% in 2008 compared with 15,1% of all pregnant visits in all clinics in the same year (UNRWA, 2008).

According to the Palestinian Health Annual Report 2009, high risk pregnancy first visits to MCH Centers in West Bank were 12.8% from all pregnancies visits and in Hebron district the high risk pregnancy first visits were 13.6% (PHIC, 2010a).

The Palestinian Household Health Survey which was done in 2006 showed that the rate of women who received prenatal healthcare during the five years preceding the survey in the Palestinian Territory reached 98.8% (including 98.7% in the West Bank and 99.1% in Gaza Strip). Receiving prenatal healthcare means that mothers indicated receiving prenatal healthcare from any qualified source (general physician, specialized doctor, nurse, or licensed midwife) who provides such care even for one time (PCBS, 2007a).

Recently the awareness about high risk pregnancy care is increasing. Therefore, the MOH established many high risk pregnancy clinics all over Palestine. For example, in Hebron districts the number of high risk pregnancy clinics increased from 3 clinics in 2008 to 10 clinics in year 2009. These clinics provide prenatal care to pregnant women who referred from general clinics from all MOH clinics in Hebron district. There is no data present that shows the follow up of these women and their offspring.

Till now, there is neither a study that describes the situation of high risk pregnancies in Palestine, nor evaluated the effect of high risk pregnancy care on the mother or her offspring health after delivery.

1.2 Problem Statement

The incidence of high risk pregnancy is increasing worldwide (Cheung, 2009). Early identification of high risk pregnancy can theoretically facilitate monitoring, referral and prompt initiation of therapy. Screening and monitoring in pregnancy are strategies used by healthcare providers to identify high risk pregnancies so that they can provide more targeted and appropriate treatment and follow up care and to monitor fetal well being in both low and high risk pregnancies (Haws et al., 2009).

As shown in the literature, several risk factors may lead to high risk pregnancy including: hypertension; diabetes; pyelonephritis; chronic kidney disease; acute surgical problems; genital tract abnormalities; maternal age; maternal height; maternal weight; heart disease; asthma and its complications; anemia (genetic and non-genetic); liver diseases; blood diseases and diseases of blood clotting; exposure to teratogens (agents that cause fetal malformation); polyhydramnios(hydramnios)and oligohydramnios and multi fetal (multiple) pregnancy (Porter R .S, 2009).

GDM and HDP are shown to be associated with adverse pregnancy outcomes as shown in the literature. These outcomes have long-term implications for both the mother and her child. Therefore, it is important that these gestational disorders must be recognized and appropriately managed. Hence, the ultimate goal of prenatal care for high risk pregnancies is to have a healthy mother and healthy baby (Bukley, 1993).

Primary Health Care is considered the cornerstone of health services in Palestine. Ministry of Health (MOH) is considered the major provider of primary health care services since it operates 413 PHC facilities out of 651 which representing 63.4% of total PHC facilities. This load at the government health care services has been increasing in the last 10 years due to the extension of insurance coverage after the beginning of the Al-Aqsa Intifada (NSHP, 2008).

One of the main services that have been extended at the MOH is the high risk pregnancy care clinics. The percentage of newly pregnant women visiting these high risk pregnancy was 12,1% in 2008 compared with 15,1% of all pregnant visits in all clinics in the same year (UNRWA, 2008).

6.12 Summary

Even the awareness for high risk pregnancy care increased in the past 2 years at MOH high risk pregnancy clinics through opening new clinics, but still there are no appropriate postnatal.

This study results emphasize the need of applying a protocol or guidance for health team in MOH high risk pregnancy clinics in Hebron. This protocol should include the postnatal care for women's after delivery and should insist on the health team role in encouraging mothers to return back after delivery for further investigations. Also, maternal and infant examinations and assessments within few days after delivery, including required laboratory tests for health screening and a plan for maternal and pediatric consultation or/and referring to obstetric and pediatric specialists or hospitals, are mandatory in order to reduce the adverse health outcomes related to GDM and HD.

6.13 Conclusions

This study described the high risk pregnancies antenatal care at the MOH clinics at Hebron district. Also, it evaluated the adverse maternal outcomes regarding two pregnancy complications; i.e. gestational diabetes and gestational hypertension. Significant differences in complications were seen between cases and the comparison related to GDM or HDP such as vision problems, nephropathy, retinopathy, placental rapture and cardiac problems, which were only seen among cases, but other minor complications were seen such as back pain, hyperthyroidism, and anemia in both groups.

Also, a significant difference was found between cases and comparison group with mother complications during delivery. After delivery, none of the women in the cases group or in the comparison group reported visiting doctors or nurse at high risk pregnancy clinics or any clinic at the MOH for follow up.

Our results conclude that efforts are needed to reduce rates of gestational diabetes and gestational hypertensive. These efforts should continue to focus on controlling for risk factors related to these disorders including obesity, age, family history, mother previous history of gestational diseases, mothers life style (diet and physical activates) prevalence among women of child-bearing age.

Also, GDM and HDP seem to be associated in later life with diseases related to them. The study concludes the need of greater awareness of this association that can lead to earlier diagnosis and improving the GDM and HDP management. In addition, this awareness will provide the woman with GDM or HDP with the knowledge about the increased risk of complications her baby has due to her condition. This will ultimately play in a role in reducing of morbidities and mortalities related to such diseases among mothers and their infants.

6.14 Recommendations

Early identification of high risk pregnancy by screening and monitoring in pregnancy must be used as strategies by healthcare providers in order to produce appropriate treatment and follow up care for mothers and their infants.

Prenatal care for high risk pregnancies has been demonstrate to be cost effective, therefore, it seems reasonable to direct resources into encouraging adequate and timely antenatal and postnatal care. Also, medical team should be provided with written guidelines and protocols to care for women through pregnancy and after delivery.

6.14.1 Gestational diabetes recommendation

- 1) Risk assessment for gestational diabetes mellitus should be undertaken at the first prenatal visit.
- 2) Women with clinical characteristics consistent with a high risk of gestational diabetes mellitus (marked obesity, personal history of gestational diabetes mellitus, glycosuria, or a strong family history of diabetes) should undergo glucose testing as soon as possible.
- 3) Women who were diagnosed with GDM should be offered lifestyle modifications advice (including weight control, self monitored blood glucose testing, diet and exercise, risk of developing type 2 diabetes in the future, having big baby).
- 4) All patients with prior gestational diabetes mellitus should be educated regarding lifestyle modifications that lessen insulin resistance, including maintenance of normal body weight through medical nutrition therapy and physical activity.
- 5) All women with gestational diabetes mellitus should receive nutritional counseling, by a registered dietitian when possible.
- 6) Programs of moderate physical exercise for women without medical or obstetrical contraindications to lower maternal glucose concentrations in women with gestational diabetes mellitus.
- 7) Encourage delivery during the 38th week unless obstetric considerations dictate otherwise in order to reduce or prevent fetal macrosomia and cesarean rates.
- 8) Women diagnosed with gestational diabetes should be offered a fasting plasma glucose measurement at the 6-week postnatal check and annually.
- 9) Women with impaired fasting glucose (IFG) in the postpartum period should be tested for diabetes annually; these patients should receive intensive medical nutrition therapy and

should be placed on an individualized exercise program because of their very high risk for development of diabetes.

10) If glucose levels are normal postpartum, reassessment of glycemia should be undertaken at a minimum of 3 year intervals.

11) Mother's education includes the need for family planning to assure optimal glyceimic regulation from the start of any subsequent pregnancy.

12) High Risk Pregnancy file modification, the file doesn't include most blood tests including FBS, RBS, HBA1C, Lipids and cholesterol, kidney test, liver tests and hormones results also it doesn't include mother height or BMI.

13) Also High Risk Pregnancy file should include postnatal follow- up appointment after delivery for the clinic for further investigation.

14) Offspring of women with gestational diabetes mellitus should be followed closely for the development of obesity and/or abnormalities of glucose tolerance.

15) Provide written guidelines and protocols for antenatal care, including postnatal follow-up, to health team in MOH clinics and give training to care provider on using these protocols.