Relationship between Blood Pressure and Diabetes in Pregnancy

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Abstract

Introduction: Pregnancy is a critical period in which maternal health plays a vital role in the health of the baby; so underlying conditions, illness and disorders caused during pregnancy or external factors can endanger the health of the mother, the fetus or both. Some problems during pregnancy, such as the presence of pregnancy blood pressure, the incidence of childbirth bleeding, premature rupture of the embryo, early childbirth and inappropriate weight of the fetus, can lead to unpleasant outcomes. The outcome of pregnancy is heavily influenced by the health of the mother and her physical condition as well, and issues such as medical problems or maternal surgeries will affect pregnancy outcomes. Pregnancy-related diabetes mellitus can be commonly cited in this period. Pregnancy is a common and prevalent medical condition in the field of carbohydrate intolerance which affects the phenomenon of pregnancy and can lead to undesirable outcomes and high-risk childbirth and affect the mother and the fetus. The adverse effects of motherhood include increased prevalence of hypertension and preeclampsia, increased cesarean section rate, Cardiovascular diseases and complications associated with dyslipidemia, abdominal obesity, hydramnioss, pyelonephritis and long-term hospitalization. High blood pressure

Methods: In this review article, the databases Medline, Cochrane, Science Direct, and Google Scholar were thoroughly searched to identify the studies Relationship between Blood Pressure and Diabetes in Pregnancy.

Results: Pregnancy is probably a vital period for proper health measures and interventions aiming to reduce the spreadout of type 2 diabetes. The prevalence of pregnancy diabetes varies from 1-14% during pregnancy, which depends on the region and population studied, the difference in data collection methods, non-random selection of the mothers and diagnostic criteria applied.

Discussion and conclusion: This competition, along with the reduction of beta cellular supply, sparks pregnancy diabetes. Thus, a stress test is applied to cause glucose intolerance and, in fact, genetic potentiality to diabetes type 2 is due to hormonal changes, which often occurs in the second half of pregnancy, in a way that insulin resistance increases progressively until delivery.

Keywords: Blood Pressure, Diabetes in Pregnancy
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Methods

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Results

In a study on the white suburban dwellers, about one-
fifth of the people had blood pressure over 160/95
mmHg; while, the blood pressure of nearly half of
them was higher than 140/90 mmHg. The prevalence
of the problem in women is closely related to their age
and increases significantly after 50 years of age (8).
Despite progress in treating HBP, the etiology of this
disease is vague in many points, so that in 90 to 95%
of patients no diagnostic causes were discovered and
the disease in these patients is called as the primary
type. Secondary HBP refers to cases when a mutilation
or specific genetic defect has caused the disorder (9).
Blood pressure in pregnancy can be divided into two
major categories. First, a pre-pregnancy HBP which is
more of the primary type and secondly, the blood pressure
due to pregnancy. Pregnancy HBP (hypertension) occurs
during pregnancy period which is itself divided into two groups of pregnancy hypertension and preeclampsia (10).
Pregnancy-induced HBP in systolic pressure over 140 mmHg or in diastolic pressure over 90 mm, and an increase in
systolic blood pressure by at least 30 mmHg, or in
diastolic pressure of at least 15 mmHg, was carried out
by the American midwifery college and gynecologists
who measured twice at an interval of at least 6 hours
after the 20th week of expectancy (11). The
international society for HBP in pregnancy proposed a
simpler definition in which two separate measurements at a 4-hour interval of diastolic blood pressure higher than 90 mmHg or a measurement higher than 140 mmHg, were considered as pregnancy
HBP (12). This definition, in addition to simplicity, is
more applicable since it does not need to know about
the pre-pregnancy blood pressure and more
meaningful prognosis has been proven for it.
Pregnancy diabetes is defined as glucose intolerance
which is first diagnosed during pregnancy (13).
Pregnancy diabetes is an endocrine metabolic disease
does when pancreatic function in the pregnant
mother is not sufficient to overcome pregnancy-
induced diabetes, and is considered as pre-diabetic
condition, which by playing a key role in the rapid rise
of diabetes, is one of the prognostic factors of diabetes
type 2 in the future of mothers and the expected
children (14). In the next 30 years, it is expected to
have a significant increase in the number of diabetic
patients around the world to 366 million people, and
prognostic measures should be taken and planned to
prevent this global problem (15). Pregnancy is
probably a vital period for proper health measures and
interventions aiming to reduce the spread out of type 2
diabetes. The prevalence of pregnancy diabetes varies
from 1-14% during pregnancy, which depends on the
region and population studied, the difference in data
collection methods, non-random selection of the
mothers and diagnostic criteria applied.

Discussion and Conclusion

Generally, there are no accepted classifications and
international criteria regarding pregnancy-related
HBP, and therefore comparing the results of different
studies is not easily possible due to the use of various
criteria (16). Other diseases which are significant in
pregnancy include pregnancy diabetes, which is the
most common metabolic disorder in pregnancy (17).
Pregnancy is a complex metabolic condition which
includes significant changes in the hormonal
environment, as well as changes in adipokines and
inflammatory cytokines. Pregnancy is associated with
a significant increase in estrogen level, progesterone,
prolactin, cortisol,-human chorionic gonadotropin
(HCG), leptin, TNF-a, and oxidative stress indexes
(18). The reduction of adiponectin from the second
trimester increases insulin resistance in the mother to
facilitate the placenta supplying fetus (19). Pregnancy
diabetes is caused by disorder of at least three aspects
of metabolism: Insulin resistance, insulin secretion and
increased liver glucose production. Although the level

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of insulin secretion increases in women with pregnancy diabetes, such as women with normal glucose tolerance; this compensation is not sufficient to overcome insulin resistance and maintain normal blood glucose levels (20). This competition, along with the reduction of beta cellular supply, sparks pregnancy diabetes. Thus, a stress test is applied to cause glucose intolerance and, in fact, genetic potentiality to diabetes type 2 is due to hormonal changes, which often occurs in the second half of pregnancy, in a way that insulin resistance increases progressively until delivery.

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