

# The Impact of Chronic Diseases during Pregnancy on the Fetus and Mother Health: A Literature Review

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## Mini Review

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## Abstract

**Introduction:** The fetal malformations are sometimes consequences of certain diseases that a pregnant woman can submit, and can increase the risks in pregnancy and cause problems not only for the fetus as also for the pregnant.

**Aim:** To determine the impact of chronic diseases in the development of the fetus, also evaluating their maternal complications.

**Methodology:** This study refers to a literature review of studies published in the databases Web of Science and PubMed Search. For this research were selected a total of 27 articles, reports and books. This review was carried out from September to December 2015.

**Results:** Asthma is a chronic disease may present variations as to its severity, however, the physician should always be attentive to functional and clinical parameters during pregnancy. In relation to the Arterial Hypertension, this is considered one of the most detrimental effects to the maternal, fetal and neonatal.

**Conclusion:** Chronic diseases, in particular asthma and arterial hypertension, reveal a great impact during pregnancy, causing complications at the fetal and maternal level.

**Keywords:** Arterial hypertension in pregnancy; Asthma in pregnancy; Diseases in pregnancy; Fetal malformations; Maternal complications

## Introduction

The fetal malformations are sometimes consequences of certain diseases that a pregnant woman can submit, and can cause a high risk pregnancy and cause problems not only for the fetus as also for the pregnant [1].

One of the chronic pathologies which may compromise the fetal well-being, developing maternal complications is Asthma. This disease is characterized by continuous or periodic symptoms of bronchoconstriction, including dyspnea, wheezing, sensation of chest oppression and cough [1].

The asthma in pregnancy is a pathology seen as a factor of elevated risk for both the expectant mother and the unborn child. According to the types and frequency of symptoms revealed by the patient, is classified as intermittent, mild persistent, moderate or severe [1]. Placing of part this pathology presented, there is a chronic disease, which is considered that constitutes a risk to the health of the pregnant woman and the fetus, designated Arterial Hypertension (AH) [2].

The arterial hypertension (AH) disease during pregnancy, encompasses the induced hypertension, includes also the gestational hypertension (hypertension in proteinuria), pre-eclampsia (with proteinuria and eclampsia (pre-eclampsia with seizures) [2]. According to the degree of severity, arterial hypertension is seen as a risk factor, including certain obstetrical antecedents, individual characteristics, adverse socio-economic conditions and clinical occurrences, according to the Ministry of Health [3]. This disease is entirely responsible for high rates of morbidity and maternal and perinatal mortality, considered one of the main public health problems [4].

The objective of this review is to know the impact of chronic diseases, such as asthma and arterial hypertension, in the development of the fetus, and also evaluating their maternal complications.

## Materials and Methods

The present Mini Review consists of a literature review, based on search of articles in Web of Science and PubMed Search engines, in which the following keywords were used: Arterial hypertension in pregnancy; Asthma in pregnancy; Diseases in pregnancy; Fetal malformations; Maternal complications. Additionally, in order to increase the search results, were also included in this review websites of official entities and books linked to health. The inclusion criteria used were scientific articles, reports and books related to the theme, that had to do with the descriptors, in Portuguese or English language. After the initial search, were selected two diseases: asthma and arterial hypertension in pregnancy. Were included a total of 27 articles, reports and books. This review was carried out from September to December 2015.

## Results

The World Health Organization (WHO) considers such as low birth weight, newborns weighing less than 2500g, irrespective of gestational age and defines a premature birth, those whose birth occurs before completing the 37 weeks of gestation [5].

The newborns should be compared with a similar population, taking as a basis the racial factors, ethnicity and fish stocks [6]. The perinatal gestational age can be determined by the method proposed by Capurro et al. in 1977 [7], which evaluates the physical and neurological characteristics or the combination of both, very used in many maternities.

## Asthma in Pregnancy

Asthma is a disease of course mutable may present variations as to its severity, however, the physician should always be attentive to functional and clinical parameters [1].

In countries such as Canada, pregnant women that are diagnosed by asthma represent approximately 0.43% [8]. While, that in countries such as the United States, may reach 8.4% [9].

According to a study published in 1992, it was considered that the fetal distress was an indication for cesarean section in 25% of asthma cases that analyzed [10].

As regards the pregnant women badly controlled in relation to asthma, there is a significant increase in the risk of complications at the level of the fetus, such as: low birth weight [11], pre-eclampsia/ eclampsia (runaway of arterial pressure) [12,13], the higher proportion of cesarean [14], prematurity [15,16] Perinatal morbidity and greater [17].

In the case of pregnant woman presenting with controlled asthma more than 3 weeks, the medication should be reduced, but if the disease is partially controlled, not controlled or with worsening, the increase of the drug should be considered [1].

Pharmacological treatment of asthma does not entail adverse effects both in pregnant women as in the fetus, being benefited the binomial maternal fetal disease control [15].

This treatment is mainly based on inhaled corticosteroids, and in cases of worsening of the clinical picture, the doses of this drug are adjusted, being possible to log an association of medications such as beta agonists, long-term and oral systemic corticosteroids, for greater control of the clinical picture [18].

According to Lime et al. [19], the discontinuation of the treatment during pregnancy can contribute to the worsening of the breastfeeding, in which 25.8% of the professionals of the study were diminishing or interrupted prior medications, even in asthmatic crisis.

Schatz et al. [20] carried out a study that 52% of patients with severe asthma present exacerbation of the disease during pregnancy, there is a high number of pregnant women hospitalized.

There are certain factors that may lead to the worsening of this disease, such as the interruption of the use of medication, allergic reactions, stress and infection in the respiratory tract [19].

### Arterial Hypertension in Pregnancy

In relation to the arterial hypertension, the repercussions more frequently associated with this disease in pregnancy are: the restriction of intra-uterine growth, low birth weight and prematurity [21].

An early diagnosis of the HA with a proper intervention at an opportune moment, the higher are the chances of a pregnancy without maternal complications and worsening of the health of the conceptus [21].

The prematurity of the newborn is a very frequent complication of hypertensive disease, either due to the spontaneous labor or by obstetric conduct of interruption of pregnancy, a compromised maternal-fetal [22].

For an evaluation of the fetal growth in the intervention of this chronic disease, was stipulated a method currently known: New Ballard Method, whose result varies from 10 (corresponding to a gestational age of 20 weeks) to 50 (corresponding to 44 weeks of gestational age). This is a more accurate if the assessment is performed in the first 12 hours of life [23].

The changes in fetal growth can be assessed by anthropometric measurements, such as, birth weight and gestational age. These variables help to define the intra-uterine growth curves, thus characterizing the newborn (NB) [24].

### Discussion and Conclusion

The mechanism by which occurs reduction of fetal growth is not fully established, because the placental physiology seems to be modified in pregnancy complicated by maternal asthma by less enzyme activity of 11-beta-hydroxysteroid dehydrogenase type 2 in pregnancies with female fetuses [25]. This enzyme exercises a protective effect in the fetus, face to excess maternal glucocorticoids and influences the fetal growth [26].

As regards the measures treatment in relation to asthma, are based on complementary oxygenation, so that the saturation remains above 95%, beta agonist of short duration and corticosteroids, prevention and correction of hypoxemia or reduction of hypercapnia [27].

The care in the delivery of asthmatic patients should be cautious, even in the absence of disease worsening, and the continuous use of medications to control the disease should not be postponed or withdrawn due to labor [25].

In relation to the arterial hypertension, the assistance and the concern in this disease also plays an extremely important role in the prevention of morbidity and maternal and perinatal mortality, since hypertension in pregnancy still cannot be avoided, while, maternal death in the majority of the times can be prevented [2]. With this review of the literature, it can be concluded that the maternal diseases, in particular Asthma and Arterial hypertension, reveal a great impact during pregnancy, causing complications the fetal and maternal level.

In short, every care must be extremely rendered in pregnant women that have some diseases, identified in this review and others, since it is necessary a high attention because of the consequences they entail both for the fetus as for maternal health, by putting it at risk of life.

### Conflicts of Interest

The authors confirm that this article content has no conflicts of interest.

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