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RESEARCH ARTICLE

MANAGING ASTHMA DURING PREGNANCY: A CASE STUDY AND REVIEW OF THE LITERATURE

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Abstract

Asthma is the most common chronic disease in pregnant women. The severity and control of asthma can change during pregnancy in variable ways in different patients. Maternal asthma when severe and poorly controlled may increase the incidence of obstetrical and foetal morbidity. Given the risk of poorly controlled asthma on the well-being of mother and child, asthma control is a priority. Optimal management can decrease maternal inflammation, prevent exacerbations and improve maternal and foetal prognosis.

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Introduction:-

Asthma is the most common chronic disease of pregnancy. It is estimated that between 3% and 12% of pregnant women suffer from asthma, with an increasing prevalence [1]. This is always a delicate time in a woman's life. We know that in a third of cases, asthma will remain stable during pregnancy, in a third of cases, asthma will worsen, and in a third of cases, asthma will improve during pregnancy.

We also know that this period is considered to be one of asthma instability, with a twofold increase in the risk of exacerbation [2,3]. Therefore, in the interests of both mother and child, we need to better understand these complex interactions to propose the most appropriate management. Undertreated and poorly controlled, asthma has a deleterious effect on pregnancy and the health of the child.

Case Report

The case presented a 26-year-old parturient, G2 P1, blood group A Rhesus positive, with a medical history of chronic asthma since childhood on background treatment. For her obstetrical history, she was delivered by cesarean section in 2018 for overdue delivery.

The patient presented for management of her delivery at 39 SA. During her pregnancy, the patient had no asthma attacks, and her pregnancy follow-up was unremarkable.

Given her previous cesarean section, the patient underwent a pelvic scan, which revealed measurements below the threshold values, i.e. a pelvis bordering on the middle strait.

The patient was programmed for a prophylactic cesarean section at 39 SA.

Just before spinal anesthesia, the patient received two puffs of inhaled beta2mimetics (Ventolin aerosol), and the cesarean section was uneventful, allowing extraction of a eutrophic neonate with good adaptation to extrauterine

life.

The patient's breathing and saturation were stable throughout the procedure.

The postoperative course was simple, and the patient did not suffer an asthma crisis in the immediate postpartum period.

Breast-feeding was allowed, and the patient was referred to her pulmonologist for control of her asthmatic disease.

Discussion:-

Pregnancy can complicate asthma control, leading to exacerbations. Between 25% and 37% of women with asthma experience a worsening of their condition during this period. [4,5]. This evolution may be partially linked to the severity of asthma before pregnancy, which may be a risk factor for poor asthma control. In 60% of cases, the course of asthma during pregnancy is identical to that during each pregnancy.

Pregnancy increases the risk of an exacerbation by two to three times, compared with a non-pregnant state.

Exacerbations occur more frequently between the 24th and 36th weeks of pregnancy. Severe exacerbations are associated with a risk of low birth weight [6]. A number of factors may contribute to the occurrence of exacerbations. Gastro-oesophageal reflux, stress, and hormonal changes are often mentioned. Recent studies have identified viral infections, lack of background treatment (or non-compliance), obesity, and active smoking as the main risk factors for exacerbations [6,7].

During pregnancy, 20% of asthmatic women will consult a doctor for an exacerbation, and 6% will be hospitalized [1,2]. Doubts remain as to the compliance of prescriptions and care received by these women. Treatment protocols may not always take pregnancy into account.

Cydulka et al. addressed this issue in a 1999 publication [8]. They compared asthmatic women aged 18 and 39 who consulted emergency departments for exacerbations. The severity of exacerbations was comparable on admission. Forty-four percent of pregnant women versus 66% of non-pregnant women received systemic corticosteroid therapy in the emergency department ($p = 0.002$). On return home, 38% of pregnant women versus 64% of non-pregnant women were prescribed oral corticosteroids ($p = 0.002$). Two weeks after the first visit to the emergency department, recurrence of the exacerbation was twice as frequent in the pregnant group.

Another important question concerns the impact of asthma exacerbations during pregnancy on the course of the pregnancy and fetal development. Risks frequently associated with maternal asthma include prematurity and low birth weight, especially when asthma is poorly controlled or in the event of an exacerbation [1,2]. Moreover, hospitalization due to asthma exacerbation is associated with an increased risk of prematurity, with a rate of 16.4% compared with 7.6% in non-hospitalized asthmatic women ($p = 0.02$) [2].

Blais et al. recently published a study examining the impact of first-trimester asthma exacerbations on the risk of congenital malformations [9]. The authors studied a cohort of 36,587 asthmatic pregnancies in Quebec (1998-2009). The prevalence of congenital malformations was 19.1%, 11.7%, and 12.0% in women with severe, moderate or no exacerbation. The study concludes that only severe exacerbations are associated with an increased risk of congenital malformations.

The diagnostic approach is the same for pregnant women as for any asthmatic patient. However, methacholine testing is not recommended for pregnant women.

Although the safety of anti-asthma treatments in pregnant women has not been formally proven, given the potential risk associated with poorly controlled asthma, assessment of the benefit-risk ratio encourages optimal treatment of these patients. Indeed, optimal asthma control during the first trimester of pregnancy is essential.

The management of asthma in pregnant women follows the same recommendations as for all asthma patients, with the primary aim of asthma control, since hypoxemia represents a major risk. The use of inhaled corticosteroids may reduce the risk of exacerbations during pregnancy, and data on the safety of this treatment are reassuring.

Consequently, the benefit-risk balance shows a positive trend in the use of inhaled corticosteroids in the treatment of persistent asthma, including in pregnant women [10,11,12,13,14].

According to current recommendations, inhaled corticosteroids are the first-line background treatment for persistent asthma in pregnant women, particularly budesonide, for which most data are available [13]. However, there is no evidence to suggest that other inhaled corticosteroids are unsafe, and effective inhaled corticosteroid treatment started before pregnancy should be continued.

However, there is no evidence to suggest that other inhaled corticosteroids are unsafe, and effective inhaled corticosteroid treatment initiated before pregnancy should be continued.

If inhaled corticosteroids are insufficiently effective, the addition of a long-acting beta-2 mimetic is recommended, particularly if this treatment was effective before pregnancy. Antileukotrienes and cromones should be considered as an alternative therapy, not as first-line treatment. As in the general asthmatic population, the use of long-term systemic corticosteroids should be reserved for cases of severe persistent asthma that remain symptomatic on maximum inhalation therapy. Pregnant women with asthma should be monitored on a regular basis, and special attention should be paid to their education [15,16,17,18].

Although the absorption and pharmacokinetics of certain drugs are altered during pregnancy, dosages remain the same as for non-pregnant asthmatics.

For the management of exacerbations, it is crucial to treat them intensively in pregnant women, because of the potential risk to the fetus. The danger associated with exacerbations and fetal hypoxia is greater than that of asthma treatments. However, pregnant women presenting to emergency departments with asthma exacerbations are less likely to benefit from systemic corticosteroid therapy than non-pregnant asthmatics [19].

When the indication is clear, the benefit of systemic corticosteroids outweighs the risk, and they should be prescribed, with prednisone or prednisolone being preferred [20].

To avoid fetal hypoxia, maintenance of maternal oxygenation is essential, and oxygen therapy is required to keep arterial saturation above 95%. In addition to maternal monitoring, fetal monitoring is essential [20].

As with any asthma patient, identifying and controlling aggravating factors (smoking, allergenic exposure, irritants) is essential.

Asthma crises during labour are rare, and the usual asthma treatment should be continued [21]. Breastfeeding is not contraindicated in asthmatics [21].

Conclusion:-

During pregnancy, asthmatics should be treated actively, as treatment is risk-free for the fetus, whereas exacerbations during pregnancy are a source of complications for both mother and fetus. Pregnant asthmatics must therefore be closely monitored, with the general practitioner, obstetrician, and pulmonologist working in close collaboration.

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