Ref: Ro Med J. 2022;69(Suppl2)
DOI: 10.37897/RMJ.2022.S2.13

Peptic ulcer disease during pregnancy

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ABSTRACT

Peptic ulcer disease during pregnancy has to be separated from its management and treatment in the general populations. It was demonstrated to have a low incidence rate, with symptoms, frequency and complications decreasing due to maternal hormones. We aimed to outline the actual management and treatment of peptic ulcer disease (PUD) during pregnancy. We performed a literature review by searching relevant information on the subject in PubMed database using the keywords: peptic ulcer disease, pregnancy, H2 receptor antagonists, proton-pump inhibitors, fetal, congenital abnormalities. Current literature studies show a decreased rate of both incidence and symptoms in pregnant women compared to the general population. Step by step therapy combines both lifestyle modifications and medical drugs for the benefit of both mother and fetus. It is difficult to differentiate from the beginning between PUD and gastroesophageal reflux (GERD) or hyperemesis gravidarum, due to similar symptoms. An accurate anamnesis and a good understanding of serological and paraclinical investigations can define the right diagnosis.
Management of this pathology in a pregnancy state can be difficult, but a compliant attitude of the mother together with an organized medical approach can facilitate treatment.

Keywords: peptic ulcer disease, pregnancy, H2 receptor antagonists, proton-pump inhibitors, fetal, congenital abnormalities

INTRODUCTION

Peptic ulcer disease (PUD) continues to be an important cause of morbidity and mortality worldwide with two primary etiologies: nonsteroidal anti-inflammatory drugs and Helicobacter pylori infection. It has demonstrated to have a low-rate incidence during pregnancy, of approximately 0.005% compared to the general population due to the modifications in the maternal hormones, especially progesterone [1]. Multiple epidemiological studies revealed a decreased incidence of peptic ulcer disease during pregnancy, but estimates might be unreliable considering the fact that for mild or moderate gastrointestinal symptoms, patients do not seek medical advice.

Differential diagnosis is established between three instances: hyperemesis gravidarum, gastroesophageal reflux and gastric ulcer, all accompanied by symptoms of dyspepsia, epigastric pain, nausea, vomiting, and heartburn, making it difficult to determine the true patient's diagnosis [2]. As for the general population, risk factors include smoking, alcoholism, stress, previous history of PUD or H. pylori infection, together with decreased socioeconomic status [3]. Multiple drugs have shown to be effective and safe, with H2 receptor antagonists being the treatment of choice.

The clinical features in pregnant woman correspond to the ones in the general population. Women present with epigastric pain described as a hungry, erosion or burning like sensation, or in mild cases, only epigastric discomfort. The correlation with food intake stands up for a first differential diagnosis between gastric and duodenal ulcer, the second

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Article History:
Received: 26 December 2021
Accepted: 12 January 2022

one occurring several hours postprandial, during the night and being relieved by ingestion of food or alkali [4]. Also, women manifest nausea and vomiting making it hard to differentiate from hyperemesis gravidarum in a woman without any medical history regarding peptic diseases or NSAIDs intake [5,6].

OBJECTIVES

The present article aims to present the up-to-date information about incidence rate, diagnostic and management of peptic ulcer disease regarding pregnancy status, along with most frequent diagnoses that can be confused during a woman's gestation.

MATERIALS AND METHODS

We conducted a literature review by searching relevant articles and studies published in English in PubMed database that analyzed the incidence, impact, and management of peptic ulcer disease during pregnancy. The research was performed using specific keywords including peptic ulcer disease, pregnancy, H2 receptor antagonists, proton-pump inhibitors, fetal, congenital abnormalities.

PATHOPHYSIOLOGY

Many hypotheses were described to support the apparent drop in both incidence and symptoms of peptic ulcer disease during pregnancy. One of them mentions an increase during gestation in plasma histaminase levels due to placental synthesis that result in both low histamine level and decreased level of gastric acid [3].

Another hypothesis talked about the influence of maternal sex hormones, especially estrogen that can produce a decrease in incidence by suppressing the gastric acid secretion. It was sustained by the fact that peptic ulcer disease occurs frequently in girls and boys of young age and less in adult women. Also, progesterone demonstrated its role by increasing the gastric mucus synthesis and supporting the theory [3,7].

As pregnancy permits the development and growth of a fetus with foreign antigens, studies talked about the theoretical immunologic tolerance regarding Helicobacter pylori colonization during pregnancy and its mild attacks and injuries, but results were unsubstantiated.

Lastly, but equally important, bypassing the ulcerogenic factors like cigarettes smoking, alcohol and NSAIDs consumption during pregnancy, stress and dietary factors might offer credible hypothesis for decreased incidence and symptoms.

INCIDENCE AND SYMPTOMS OF PUD

Analyzing the current literature, it shows a decreased rate of both incidence and symptoms of PUD in pregnant women compared to the general population. It was demonstrated that not only the greater care that a pregnant woman gives during this period, by ceasing smoking, reducing stressful activities, and following a balanced diet, but also the endocrine regulation of the organism contributes to it. Progesterone, the main hormone that supports pregnancy has its role in increasing the gastric mucus synthesis, while estrogen drops the gastric acid secretion for the same benefits.

However, despite that many epidemiological studies revealed a declined incidence of peptic ulcer disease during pregnancy, we must bear in mind that some estimates might be unreliable considering the fact that for mild or moderate gastrointestinal symptoms, patients do not seek medical advice. Considering this fact, it is important for physicians dealing with this pathology to make the differential diagnosis between instances frequent during gestational period.

Pyrosis and dyspepsia can mimic also other gastrointestinal conditions including gastroesophageal reflux disease (GERD), hyperemesis gravidarum, pancreatitis, acute cholecystitis, viral hepatitis, appendicitis or irritable bowel disease. GERD is common during pregnancy, especially in the last trimester due to the enlarged uterus, causing pain radiating to the neck and exacerbated by acidic drinks. Hyperemesis gravidarum with severe episodes of nausea and vomiting, more intense in the morning is characteristic in the first trimester, while PUD symptoms exacerbate during the last one and especially in the night or postprandially. Pancreatitis evolves with pain radiating in the back, exacerbated by food intake and pyrexia, while appendicitis manifests with pain in the right upper quadrant or epigastric pain that can mimic PUD symptoms.

DIAGNOSIS

Management of a case of pregnant woman with PUD combines the physical examination, together with the medical history, laboratory tests and paraclinical investigations. It is important to inquire about type and severity of the symptoms, pain localization and characteristics, agents that exacerbate and agents that soothe them, along with past history of alcohol consumption, cigarettes smoking and NSAIDs intake.

Standard blood analyses like blood count, electrolytes, biochemical parameters of the liver and amylase level are performed. An abdominal ultrasound can exclude pathologies of the gallbladder

and kidney. Radiological investigation of the upper gastrointestinal tract is contraindicated during pregnancy due to teratogenic effect of radiation, especially during first trimester, possible fetal complications, placental abruption, or variation in blood pressure for the mother [8,9]. The esophago-gastroduodenoscopy (EGD), on the other side, is considered relatively safe for the fetus, being performed in severe gastrointestinal bleedings or vomiting when symptoms are refractory to intensive medical therapy [10].

TREATMENT OPTIONS

For the treatment and management of PUD during pregnancy, current literature mentions both lifestyle and dietary habits modifications and medical treatment with certain classes of drugs [11].

For a woman in childbearing age presenting with dyspepsia and pyrosis it is important to establish first if there are any warning signs (dysphagia, severe gastrointestinal bleeding, involuntary weight loss) that need an early EGD. Considering a pregnancy state, if none of these is reported, the first recommendation is a lifestyle change and adaptation dietary habits. A healthy diet must exclude fatty food, acidic drinks, caffeine, chocolate, along with cease of smoking and alcohol consumption [3].

If no response is seen after these measures, a second step is taken, according to the symptoms mentioned above, whether if it is about PUD or GERD (difficult to differentiate at the beginning) and involves the use of antiacids or sucralfate. Antiacids, however can produce iron malabsorption, an important side effect considering the fact that pregnancy frequently comes with gestational anemia, therefore they must be administered at a different time of the day than the iron supplements to bypass their interaction. The dosage is 15 to 30 ml one hour after meals and at bedtime [3]. Medicines based on aluminum are recommended during second and third trimester and the ones containing magnesium should be avoided near term due to the possibility to cause tocolysis and dystocia because of systemic absorption [3,12,13]. Regarding the use of sucralfate, the parenteral administration of aluminum is forbidden during pregnancy due to its fetotoxicity, while oral administration seemed to be safe on pregnant women, as resulted from current studies.

If there are still no enhancements or symptoms are refractory, a third step involves the use of empiric therapy with H2 receptor antagonists, before deciding for an invasive procedure as EGD and last option treatment, the proton pump inhibitors (PPI). All H2 receptor antagonists commercially distributed can cross the placenta and their use during pregnancy was reported to be relatively safe, with studies still in progress nowadays.

Concerning the PPI, they can suppress the gastric acid secretion, showing high efficiency in the triple therapy for H. pylori, but also in the treatment of reflux esophagitis and gastroduodenal ulcers. The most used drug from this category, omeprazole, can cross the placenta with no teratogenicity, but embryo lethality and fetal resorption were observed [14]. The usage during the first trimester resulted in congenital abnormalities, which were documented in studies made by the Swedish and Danish professional societies [15,16]. As far as we are concerned about treatment of H. pylori infection, it is recommended to postpone the treatment after birth and even breastfeeding due to the side effects of certain drugs involved in the triple therapy [17].

Complications like hematemesis, penetration or perforation and gastrointestinal obstruction can occur rarely during pregnancy. Typically, if happen during the third trimester and are associated with eclampsia. Perforation is very rare and the use of EGD is contraindicated in this case, while early surgery can improve the maternal and fetal prognosis.

CONCLUSIONS

The incidence, symptoms, frequency and complication rate of PUD during pregnancy are decreased, due to maternal hormonal status, immunology, but also due to a more protective conduct of mothers. Still, physicians are advised to treat dyspepsia and pyrosis of undetermined etiology according to the actual guidelines and always keep in mind both benefits of mother and fetus. Step by step therapy with lifestyle changes and dietary habits modification along with symptomatic drugs (antiacids, sucralfate) are the first line therapy. In case of failure, a second line therapy, as the H2 receptor antagonists can be used and if no favorable response is seen, further investigations and PPI therapy can be started.

Conflict of interest: none declared
Financial support: none declared

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