Intrahepatic cholestasis of pregnancy is a hepatic disorder characterized by pruritus and an elevation in serum bile acid levels. Although intrahepatic cholestasis of pregnancy poses little risk for women, this condition carries a significant risk for the fetus, including complications such as preterm delivery, meconium-stained amniotic fluid, and stillbirth. The purpose of this Consult is to review the current literature on intrahepatic cholestasis of pregnancy and provide recommendations based on the available evidence. The recommendations by the Society for Maternal-Fetal Medicine are as follows: (1) we recommend measurement of serum bile acid and liver transaminase levels in patients with suspected intrahepatic cholestasis of pregnancy (GRADE 1B); (2) we recommend that ursodeoxycholic acid be used as the first-line agent for the treatment of maternal symptoms of intrahepatic cholestasis of pregnancy (GRADE 1A); (3) we suggest that patients with a diagnosis of intrahepatic cholestasis of pregnancy begin antenatal fetal surveillance at a gestational age when delivery would be performed in response to abnormal fetal testing results or at the time of diagnosis if the diagnosis is made later in gestation (GRADE 2C); (4) we recommend that patients with total bile acid levels of ≥100 μmol/L be offered delivery at 36 0/7 weeks of gestation, given that the risk of stillbirth increases substantially around this gestational age (GRADE 1B); (5) we recommend delivery between 36 0/7 and 39 0/7 weeks of gestation for patients with intrahepatic cholestasis of pregnancy and total bile acid levels of <100 μmol/L (GRADE 1C); (6) we recommend administration of antenatal corticosteroids for fetal lung maturity for patients delivering before 37 0/7 weeks of gestation if not previously administered (GRADE 1A); (7) we recommend against preterm delivery at <37 weeks of gestation in patients with a clinical diagnosis of intrahepatic cholestasis of pregnancy without laboratory confirmation of elevated bile acid levels (GRADE 1B).

Key words: intrahepatic cholestasis of pregnancy, pruritus, stillbirth, ursodeoxycholic acid

Introduction

Intrahepatic cholestasis of pregnancy (ICP) occurs in the second and third trimesters of pregnancy and is characterized by pruritus and elevated serum bile acid levels. The incidence has been estimated to range from 0.3% to 15% in various populations, with most of the estimates ranging from 0.3% to 0.5%. Although ICP poses little risk for pregnant women, it confers risk to the fetus, including preterm delivery, meconium-stained amniotic fluid, and stillbirth. In nonpregnant patients, cholestasis is most often a sign of an underlying hepatic disease; hepatic pathologies that may present with cholestasis include biliary tract disease (common) and autoimmune disease (rare). In pregnancy, cholestasis is most often self-limited and resolves after delivery. The persistence and intensity of associated pruritus are uncomfortable, and the increased risk of stillbirth is a significant concern to both patients and healthcare professionals.

What is the differential diagnosis of pruritus in pregnancy?

Pruritus is a common complaint that affects approximately 23% of all pregnancies. In most cases, there is no underlying pathologic process. The most frequent pathologic causes of pruritus specific to pregnancy include atopic eruption of pregnancy (AEP), polymorphic eruption of pregnancy (PEP), pemphigoid gestationis (PG), and ICP. Of these, the most common pruritic disorder of pregnancy is AEP, which is associated with an eczematous rash on the face, eyelids, neck, antecubital and popliteal fossae, trunk,
and extremities. The most common dermatosis of pregnancy is PEP, which is associated with pruritic urticarial papules and plaques on the abdomen and proximal thighs. PG is rare and is associated with the development of vesicles and bullae. In ICP, itching is often generalized but worsens at night, and is generally not associated with a rash.

How should a woman with pruritus in pregnancy be evaluated?

A detailed history and physical examination are imperative in making the diagnosis of ICP. In the process of taking the history and performing the physical examination, it is appropriate to consider and assess for other causes of pruritus without a rash (Box 1). ICP should be considered in a woman who develops new-onset pruritus without a rash in the second half of pregnancy. Although ICP is not associated with a rash, the intensity of the pruritus can lead to the development of excoriations or prurigo nodularis, which may be mistaken for a rash.

In evaluating a patient for other potential causes for pruritus, one should assess the onset, extent, severity, aggravating and alleviating factors, timing, medical history, medications (narcotics), allergies, medical or family history of atopy (eg, eczema, allergic rhinitis, and asthma), amount of bathing, household contacts, pets, travel history, sexual history and risk factors for hepatitis, history of intravenous drug use (which is a risk factor for HIV and hepatitis), and whether there was a history of ICP in any previous pregnancies. Other significant signs and symptoms that should be assessed include recent changes in weight, appetite, skin or eye color (jaundice), and sleep habits. Excessive fatigue, insomnia, malaise, and abdominal pain and colic are not common with ICP. If present, an evaluation for other causes of pruritus and hepatic disease may be warranted.

The physical examination should assess for the presence of rashes, excoriations, papules, plaques, or bullae; with ICP, a rash is usually not present other than excoriations from itching. Dark urine and jaundice are not commonly associated with ICP and suggest other hepatic diseases.

What laboratory evaluation is recommended for a pregnant woman with pruritus in whom intrahepatic cholestasis of pregnancy is suspected?

There are different types of assays available for bile acid testing. Mass spectrometry and liquid chromatography can be used to evaluate the total and fractionated (cholic, chenodeoxycholic, and deoxycholic acid) bile acid levels. These tests are typically performed by specialty laboratories, and the results are available in 4 to 14 days, depending on the technique. The total bile acid levels can also be assessed by enzymatic assay, which can be sent to a specialty laboratory but is also performed by some hospital laboratories. The turnaround time for the enzymatic assay ranges from 4 hours to 4 days. Although the enzymatic assay does not provide the fractionated bile acid levels, the utility of the fractionated levels is limited, and the most clinically useful value is the total bile acid level. Clinicians should be familiar with their laboratories' bile acid tests to ensure the appropriate ordering and interpretation of tests and results.

The clinical diagnosis of ICP is based on pruritus symptoms and supported by the absence of diseases associated with similar laboratory findings and symptoms. If available, pregnancy-specific reference ranges for serum bile acid levels can be used. In laboratories where specific references are available, a level above the upper limit of normal is considered diagnostic. In most cases, however, pregnancy or laboratory-specific reference ranges are not available or reported. A total serum bile acid level of >10 μmol/L is often used to diagnose ICP, although the data are limited and the diagnostic accuracy has been questioned. Increases in the levels of transaminases (eg, alanine aminotransferase and aspartate aminotransferase) can also sometimes be seen in ICP, although elevated transaminase levels are not necessary for the diagnosis. Although the bile acid level can be affected by a postprandial state and fasting bile acid measurements are often performed, the differences between the random and fasting results are small. Samples analyzed in most reports of ICP in pregnancy were obtained at random. Random bile acid levels can therefore be used to diagnose ICP and are typically more convenient for the patient and practitioner.

Box 2 lists other causes of ICP and elevated bile acid levels. A small subset of women with ICP will have an identifiable

<table>
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<th>Conditions associated with pruritus without rash</th>
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<td>Chronic renal failure</td>
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<td>Hypo- or hyperthyroidism</td>
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<td>Liver disease</td>
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<tr>
<td>Malabsorption</td>
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<tr>
<td>Parasitosis or helminthosis</td>
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<tr>
<td>Parasitosis or helminthosis</td>
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<tr>
<td>HIV</td>
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<tr>
<td>Hodgkin disease</td>
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<tr>
<td>Leukemia</td>
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<tr>
<td>Non-Hodgkin lymphoma</td>
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<tr>
<td>Polycythemia rubra vera</td>
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<td>Tumors (paraneoplastic)</td>
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<tr>
<td>Tumors (paraneoplastic)</td>
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<tr>
<td>Drugs (hydrochlorothiazide, opioids, among others)</td>
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<tr>
<td>Multiple sclerosis</td>
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<tr>
<td>Psychiatric disease (anxiety, depression, obsessive compulsive disorder)</td>
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underlying hepatic disease. For most of these women, the presentation, history, or physical examination will suggest the underlying disorder. Particularly in women with elevated bile acid levels before the second trimester of pregnancy, other etiologies (eg, mild or late-onset forms of bile acid metabolism disorders) should be considered. We recommend measurement of serum bile acid and liver transaminase levels in patients with suspected ICP (GRADE 1B).

Are particular women or populations at risk for cholestasis of pregnancy?

Women with preexisting hepatobiliary disease are reported to be at a higher risk for ICP. One retrospective, population-based case-control study from Finland showed increased odds for ICP in women with hepatitis C (rate ratio, 3.5; 95% CI, 1.6–7.6), nonalcoholic liver cirrhosis (rate ratio, 8.2; 95% CI, 1.9–35.5), gallstones and cholecystitis (rate ratio, 3.7; 95% CI, 3.2–4.2), and nonalcoholic pancreatitis (rate ratio, 3.2; 95% CI, 1.7–5.7).9

Patients with a history of ICP are at risk for recurrence, although the specific degree of risk is unknown. ICP has been associated with multiple gestations and advanced maternal age, and familial clustering of cases of ICP suggests a genetic component.10 ICP likely results from both environmental and hormonal influences in genetically susceptible women.

What are the complications of cholestasis of pregnancy?

ICP is associated with several adverse perinatal outcomes, including stillbirth, meconium-stained amniotic fluid, and preterm birth (both spontaneous and iatrogenic).

Compared with patients without ICP, those affected by ICP have a higher stillbirth rate. The stillbirth rate at 37 weeks of gestation and beyond for the entire United States population is approximately 0.1% to 0.3% (1–3 per 1000).11,12 Excluding other attributable causes for stillbirth (eg, preeclampsia, diabetes, fetal growth restriction, and fetal anomalies), the incidence of stillbirth after 37 weeks of gestation attributable to ICP is estimated to be approximately 1.2%.13 In one series that included 20 stillbirths associated with ICP, the median gestational age at fetal death was 38 weeks of gestation, with 2 fetal deaths occurring before 37 weeks of gestation.14 In a prospective cohort study evaluating patients affected by ICP with total bile acid levels of ≥40 μmol/L, Geenes et al15 found a higher incidence of stillbirth in the population with ICP compared with the unaffected controls after adjusting for confounders such as age, body mass index, and ethnicity (1.5% [10/664] vs 0.5% [11/2205]; adjusted odds ratio [aOR], 2.58; 95% CI, 1.03–6.49). This risk remained significant when compared with the baseline data in the United Kingdom (1.5% [10/664] vs 0.4% [2626/668,195]; odds ratio, 3.05; 95% CI, 1.65–5.63).15 The pathophysiology of stillbirth in ICP is poorly understood but has been hypothesized to be related to the development of a fetal arrhythmia or vasospasm of the placental chorionic surface vessels induced by high levels of bile acids.16–18

Data suggest that the risk of stillbirth in cases with ICP is associated with the total bile acid level.19,20 A large systematic review and meta-analysis of individual patient data demonstrated that the highest risk for stillbirth occurred in women with total bile acid levels of ≥100 μmol/L (hazard ratio [HR], 30.50; 95% CI, 8.83–105.30), whereas women with lower bile acid levels were found to have no increased risk.21 However, these data should be interpreted cautiously because in most of the cited studies, the patients were managed to prevent stillbirths, and the management strategies may have mitigated the risks. Thus, although the risk of stillbirth may be lower at lower bile acid levels some degree of risk may still be present even with low bile acid levels (eg, <40 μmol/L, which has been suggested as a cutoff to delineate the risk).22–24

Women with ICP and bile acid levels of ≥40 μmol/L have been reported to have increased risks for adverse perinatal outcomes (pooled relative risk, 1.96; 95% CI, 1.63–2.35), including preterm birth (pooled relative risk, 2.23; 95% CI, 1.51–3.29), asphyxia or respiratory distress syndrome.

### BOX 2

Other causes of elevated bile acids

<table>
<thead>
<tr>
<th>Condition</th>
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<tbody>
<tr>
<td>Primary biliary cholangitis</td>
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<tr>
<td>Obstructive bile duct lesion</td>
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<tr>
<td>Primary sclerosing cholangitis (associated with inflammatory bowel disease)</td>
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<tr>
<td>Drug-induced cholestasis (trimethoprim-sulfamethoxazole, phenothiazines, ampicillin)</td>
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<tr>
<td>Liver tumor</td>
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<tr>
<td>Bacterial, fungal, and viral infections (eg, Ebstein-Barr virus and cytomegalovirus)</td>
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<tr>
<td>Hepatic amyloidosis</td>
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<tr>
<td>Lymphoma and solid organ malignancies</td>
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<tr>
<td>Hepatic sarcoidosis</td>
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<tr>
<td>Autoimmune hepatitis</td>
</tr>
<tr>
<td>Idiopathic adulthood ductopenia</td>
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<tr>
<td>Total parental nutrition</td>
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<tr>
<td>Viral diseases</td>
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<tr>
<td>Familial intrahepatic cholestasis</td>
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<tr>
<td>Cirrhosis</td>
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<tr>
<td>Sickle cell intrahepatic cholestasis</td>
</tr>
<tr>
<td>Hepatic congestion from heart failure</td>
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<tr>
<td>Crohn disease</td>
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</table>

(pooled relative risk, 1.67; 95% CI, 1.18–2.36), and meco-

nium-stained amniotic fluid (pooled relative risk, 2.27; 95% CI, 1.81–2.85).25

Increased rates of both indicated and spontaneous pre-

term birth have been reported in cases with ICP, with the in-

cidence of preterm birth varying greatly among the

studies.14,21 Pregnanacies complicated by spontaneous

preterm birth have been reported to have an earlier onset of

pruritus, and the prevalence of spontaneous preterm birth

increases with higher total bile acid levels.14,21 Bile acids

seem to activate myometrial oxytocin receptors, which may

explain the observed increase in spontaneous preterm

labor.26

There is some evidence to suggest that patients with ICP are

also at an increased risk for preeclampsia. In a large Swed-

ish national cohort, patients with ICP had an aOR of 2.62 (95% CI,

2.32–2.78) for preeclampsia.1 In another case-control study,
in which the controls were selected at random (rather than matched), Raz et al27
demonstrated an approximately 5-fold increase in the diagnosis of preeclampsia in

women with ICP in an unadjusted analysis. Women with total bile acid levels of

≥40 μmol/L were at the highest risk. The diagnosis of pre-
eclampsia typically occurred 2 to 4 weeks after the diagnosis of

ICP, and proteinuria preceded elevated blood pressure in all cases.27

What is the recommended treatment for cholestasis of pregnancy?

Pharmacologic treatment of ICP has 2 potential goals: to

reduce the maternal symptoms of pruritus and to reduce the

risk for adverse perinatal outcomes.

Ursodeoxycholic acid (UDCA) is the most commonly used
treatment for ICP. Three meta-analyses have summarized the
data from randomized trials and have reported benefits in
improving maternal symptoms.28–30 Compared with placebo or alternative agents (eg, cholestyramine or S-

adenosyl-methionine), UDCA is more effective in relieving

pruritus and improving laboratory abnormalities and has no

known adverse effects on the fetus. We recommend that UDCA

be used as the first-line agent for the treatment of maternal

symptoms of ICP (GRADE 1A).

Data on whether UDCA improves perinatal outcomes

are less conclusive. One meta-analysis of 12 randomized

trials reported that patients with ICP who received UDCA

had a reduced risk for preterm birth (risk ratio, 0.56; 95% CI, 0.43–0.72), fetal distress (risk ratio, 0.68; 95% CI, 0.49–0.94), respiratory distress syndrome (risk ratio, 0.33; 95% CI, 0.13–0.86), and neonatal intensive care

unit admission (risk ratio, 0.55; 95% CI, 0.35–0.87). Other

outcomes improved by UDCA treatment included later gestational age at delivery (standardized mean difference [SMD], 0.44; 95% CI, 0.26–0.63) and higher birthweight (SMD, 0.21; 95% CI, 0.02–0.40).30 In a 2013 Cochrane

systematic review and meta-analysis of treatments for ICP, UDCA was not associated with fewer events of “fetal
distress” compared with a placebo, but it was associated

with fewer total preterm births (risk ratio, 0.46; 95% CI, 0.28–0.73).29

A large (n=605) randomized, placebo-controlled trial of

UDCA for the treatment of ICP has been published since the

2013 Cochrane review.31 The participants had bile acid

levels of at least 10 μmol/L. The study did not find any dif-

ference in the primary composite outcome of perinatal

death, preterm delivery at <37 weeks of gestation, or

neonatal intensive care unit admissions for at least 4 hours

(adjusted risk ratio, 0.85; 95% CI, 0.62–1.15) in the UDCA

treatment group compared with the placebo group. A

standardized maternal itch score improved more in the

UDCA group compared with the placebo group, despite a

similar level of bile acids. This trial supports the use of UDCA

to improve maternal pruritus but calls into question the use

of UDCA to improve the perinatal outcomes in the context of

standard management with fetal testing and planned early
delivery for ICP.

The typical starting dose for UDCA treatment is 10–15

mg/kg per day, which can be divided into 2 or 3 daily

doses. Typical regimens are 300 mg twice or 3 times daily

or 500 mg twice daily. The drug is usually well tolerated,

although mild cases of nausea and dizziness have been

reported in up to 25% of patients. A decrease in pruritus is

usually seen within 1 to 2 weeks. If the pruritus is not

relieved, the dose can be titrated to a maximum of 21 mg/ 

kg per day. Biochemical improvement is usually seen

within 3 to 4 weeks.

Alternative drugs, such as S-adenosyl-methionine and

cholestyramine, can be considered for patients who cannot
take UDCA or who have continued symptoms on the

maximum dosage. S-adenosyl-methionine may improve

pruritus, although it is less effective than UDCA.29 Chole-

styramine binds bile acids in the gut, reducing their reab-

sorption, but has a limited impact on pruritus in ICP and a

significant side effect profile, which primarily includes

gastrointestinal symptoms such as constipation, diarrhea,

abdominal pain, nausea, vomiting, and bloating. It has been

reported that rifampin can be combined with UDCA for re-

fractory cases of ICP with improvement in pruritus.32 Anti-
histamines such as diphenhydramine or hydroxyzine have

also been used for pruritus, although these may have limited
topical antipruritics (eg, menthol creams and
calamine lotion) are also of limited use, because itching is

typically widespread. To date, none of these alternative

treatments have been evaluated in randomized controlled

trials.

Is serial serum bile acid level testing beneficial?

In patients with ICP, bile acid levels can increase during

pregnancy and may increase rapidly near term.34 Given that

higher total serum bile acid levels have been associated with

adverse perinatal outcomes in some studies, repeat bile

acid measurement has been suggested as potentially useful

in guiding the management of ICP, particularly because
studies have generally considered peak total bile acid levels.\textsuperscript{15,21,22} Follow-up laboratory testing may help guide delivery timing, especially in severe cases, but serial testing (eg, weekly) is not recommended. If symptoms persist for 4 to 6 weeks after delivery, biochemical testing should be repeated, and if these test results are still abnormal, the patient should be referred to a liver specialist for further evaluation and management.

How should a pregnant woman with itching and normal bile acids be managed?
The pruritus in ICP can precede the rise in serum bile acid levels by several weeks.\textsuperscript{36} Therefore, if symptoms persist and there is no other explanation for pruritus, measurement of the total bile acid level and serum transaminase levels should be repeated. Some clinicians will make the diagnosis of ICP on the basis of the clinical symptoms alone and start treatment with UDCA. If UDCA is started empirically at the time testing is performed and before the results are available, it is possible that elevated bile acid levels or transaminase levels may never be detected.

Is antepartum testing indicated for patients with intrahepatic cholestasis of pregnancy?
The observed increased risk of stillbirth in patients with ICP has prompted most practitioners to perform antenatal testing in this setting. However, the efficacy of antepartum fetal testing to prevent stillbirth in the setting of ICP is unknown. Several studies and case reports have reported stillbirths occurring within a few days of a reactive nonstress test.\textsuperscript{23,24,35,36} It has been hypothesized that antepartum fetal testing in patients with ICP may not be useful because the mechanism of stillbirth is thought to be a sudden event rather than a chronic placental vascular process. Stillbirth in ICP is not typically associated with fetal growth restriction, oligohydramnios, or abnormal placental histology (other than meconium staining), which are classical features of pathologic processes where fetal testing is thought to be of value. Recent clinical trials and meta-analyses support the use of fetal surveillance, which results in substantially lower rates of adverse perinatal outcomes compared with earlier reports, potentially due to more intensive monitoring with fetal surveillance and late preterm or early-term delivery.\textsuperscript{21,29,31} We suggest that patients with a diagnosis of ICP begin antenatal fetal surveillance at a gestational age when delivery would be performed in response to abnormal fetal testing results, or at the time of diagnosis if the diagnosis is made later in gestation.

When should women with a diagnosis of cholestasis be delivered?
The rate of stillbirth is increased in women with ICP, with most stillbirths occurring in the third trimester.\textsuperscript{13,14,37} In most cases of stillbirth, fetuses are appropriately grown without structural abnormalities. Although the risk for late stillbirth is avoided with an early planned delivery, this must be weighed against risks to the neonate related to prematurity.

In a decision-analytic model, Lo et al\textsuperscript{38} calculated the optimal gestational age for delivery in women with ICP. After balancing the neonatal mortality and morbidities associated with early delivery and the risk of stillbirth associated with ICP, they demonstrated that the optimal time to deliver patients with ICP is at 36 weeks of gestation.\textsuperscript{38} Puljic et al\textsuperscript{39} also calculated the optimal gestational age for delivery based on a retrospective cohort of 5545 pregnant women with ICP. The authors calculated the risk of infant and fetal death by each additional week of expectant management vs delivery and

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### Summary of recommendations

<table>
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<th>Number Recommendations</th>
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<td>1</td>
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<td>2</td>
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<td>1A</td>
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<td>7</td>
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GRADE: Grading of Recommendations Assessment, Development, and Evaluation; ICP, intrahepatic cholestasis of pregnancy; UDCA, ursodeoxycholic acid.

found that among women with ICP, the risk for perinatal mortality was lowest in those who delivered at 36 weeks of gestation (4.7 per 10,000; 95% CI, 0.0–10.5) compared with those expectantly managed beyond 36 weeks of gestation (19.2 per 10,000; 95% CI, 7.6–30.8). However, neither of these models considered the disease severity or bile acid level;
in the recent meta-analysis by Ovadia et al, the risk of stillbirth was not increased except in those with total bile acid levels of \( \geq 100 \mumol/L \).

The timing of delivery should be approached using risk-stratification based on patient-specific factors, including the total bile acid levels, in a shared decision-making model. We recommend that patients with total bile acid levels of \( \geq 100 \mumol/L \) be offered delivery at 36 0/7 weeks of gestation, given that the risk of stillbirth increases substantially around this gestational age (GRADE 1B). We recommend delivery between 36 0/7 and 39 0/7 weeks of gestation for patients with ICP and total bile acid levels of \(<100 \mumol/L\) (GRADE 1C). Delivery timing for women with total bile acid levels of \(<100 \mumol/L\) should be individualized: it is reasonable for patients with bile acid levels of \(<40 \mumol/L\) to be managed toward the later end of this time range, given the low risk for stillbirth seen in the studies referenced above, whereas women with total bile acid levels of \( \geq 40 \mumol/L \) should be considered for earlier delivery.

Delivery between 34 and 36 weeks of gestation can be considered in women with ICP, with total bile acid levels of \( \geq 100 \mumol/L \), and with any of the following:

- excruciating and unremitting maternal pruritus not relieved with pharmacotherapy;
- a history of stillbirth before 36 weeks of gestation due to ICP with recurring ICP in the current pregnancy; or
- preexisting or acute hepatic disease with clinical or laboratory evidence of worsening hepatic function.

Any patient delivered for ICP before 36 weeks of gestation should be extensively counseled about the potential morbidity of prematurity and the maternal and fetal benefits of early delivery. We recommend the administration of antenatal corticosteroids for fetal lung maturity for patients delivering before 37 0/7 weeks of gestation if not previously administered (GRADE 1A).

For patients with early-term pregnancies (37 to 38 weeks of gestation) with pruritus suggestive of ICP, no rash, and no bile acid results yet available to confirm the diagnosis, management should be based on shared decision-making that involves a discussion of the uncertainty of the diagnosis, the risks of ICP vs early-term delivery, and the values and preferences of the patient. Diagnostic certainty and advice about delivery management are improved if there are elevated transaminase levels or a history of ICP in previous pregnancies, and it may be reasonable to deliver in the absence of the results for bile acid levels in these situations. When ICP is suspected in early-term gestations and bile acid level results may be delayed, the use of enzymatic bile acid assays can shorten the time to obtain results and may be useful. We recommend against preterm delivery at \(<37\) weeks of gestation in patients with a clinical diagnosis of ICP without laboratory confirmation of elevated bile acid levels (GRADE 1B).

What is the likelihood of recurrence?

The risk of recurrence of ICP may be as high as 90%, although data are insufficient to counsel patients on specific ranges. There are also data suggesting that patients with a history of ICP are at a higher risk for later developing hepatobiliary diseases, including chronic hepatitis (HR, 5.96; 95% CI, 3.4–10.3), liver fibrosis or cirrhosis (HR, 5.11; 95% CI, 3.3–7.9), hepatitis C (HR, 4.16; 95% CI, 3.1–5.5), and cholangitis (HR, 4.2; 95% CI, 3.1–5.7). The risk seems to be the greatest within the first year after the diagnosis of ICP. Given the risk for hepatitis C in these patients and the availability of an effective treatment, some experts advocate for routine testing for hepatitis C in patients with ICP.

It is important to consider reevaluation of the liver function test results after delivery in patients with persistent pruritus or other signs or symptoms of a hepatobiliary disease, such as right upper quadrant pain or jaundice. If the serologic study results remain abnormal, the patient should be referred to a liver specialist for evaluation for another underlying condition.

REFERENCES


All authors and committee members have filed a conflict of interest disclosure delineating personal, professional, and/or business interests that might be perceived as a real or potential conflict of interest in relation to this publication. Any conflicts have been resolved through a process approved by the executive board. The Society for Maternal-Fetal Medicine (SMFM) has neither solicited nor accepted any commercial involvement in the development of the content of this publication.

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SMFM has adopted the use of the word “woman” (and the pronouns “she” and “her”) to apply to individuals who are assigned female sex at birth, including individuals who identify as men as well as nonbinary individuals who identify as both genders or as neither gender. As gender-neutral language continues to evolve in the scientific and medical communities, SMFM will reassess this usage and make appropriate adjustments as necessary.