


## Identification of Liver Function Disorders in Pregnant Women at Home Regional Special Hospital for Mother and Child Pertiwi

Inggit Dhiah Asmarani Sudirman<sup>1</sup>, M. Hamsah<sup>2</sup>, Berry Erida Hasbi<sup>3</sup>, Mona Nulanda<sup>2</sup>, Irmayanti Haidir Bima<sup>5</sup>

<sup>1</sup>Mahasiswa, Fakultas Kedokteran, Universitas Muslim Indonesia, <sup>2</sup>Departemen Ilmu Obstetri dan Ginekologi Fakultas Kedokteran UMI, RSP Ibnu Sina YW-UMI, Kota Makassar, <sup>3</sup>Departemen Ilmu Bedah, Fakultas Kedokteran UMI, RSP Ibnu Sina YW-UMI, Kota Makassar, <sup>5</sup>Departemen Ilmu Patologi Klinik Fakultas Kedokteran UMI, RSP Ibnu Sina YW-UMI, Kota Makassar

Article Info	ABSTRACT
<b>Keywords:</b> Liver dysfunction, pregnant women, ALT and AST examination.	Liver function tests need to be carried out on pregnant women, liver function tests to measure enzyme activity in the liver include Serum Tests Glutamate Oxaloacetate Transaminase (SGOT) / Aspartate Transaminase (AST) and Serum Glutamate Pyruvate Transaminase (SGPT) / Alanine Transaminase (ALT) Tests. These examinations can help determine the presence of liver function disorders and can help compile a differential diagnosis. This study was conducted with the aim of early detection of liver dysfunction in pregnant women, using an analytical observational research method with a cross-sectional approach where the data taken was based on primary data at the Pertiwi Mother and Child Special Hospital, and analyzed using SPSS Statistics software. The results showed that the majority of pregnant women who were samples had liver function in the normal category based on the results of Alanine Aminotransferase (ALT) and Aspartate Aminotransferase (AST) examinations. Of the total 30 samples, 96.7% had normal ALT and AST results, while 3.3% showed abnormal results. This shows that liver dysfunction in pregnant women at the Pertiwi Mother and Child Hospital is relatively rare.
This is an open access article under the <a href="#">CC BY-NC</a> license 	<b>Corresponding Author:</b> Inggit Dhiah Asmarani Sudirman Fakultas Kedokteran, Universitas Muslim Indonesia Jl. Urip Sumoharjo, Panaikang, Kec. Panakkukang, Kota Makassar <a href="mailto:inggitdhiah6690@gmail.com">inggitdhiah6690@gmail.com</a>

### INTRODUCTION

Pregnancy is a time of great physiological and metabolic changes in the mother. Liver disease is a serious complication of pregnancy and poses a challenge to gynecologists and hepatologists. It occurs in about 3% of all pregnancies and can cause a variety of maternal and perinatal morbidities, some of which are fatal to both mother and child.

Liver disorders can present themselves inconspicuously during pregnancy. In normal pregnancy, physiological and hormonal changes can occur in the human body, some of which can also be seen in women with liver disease. Liver disease in pregnant women can be divided into two main categories of liver disease, namely liver disease unrelated to pregnancy and some diseases directly related to pregnancy. Liver disorders related to pregnancy, in their occurrence show trimester-specific characteristics, while liver disease

unrelated to pregnancy can occur at any time. Liver diseases associated with pregnancy include acute fatty liver of pregnancy (AFLP), intrahepatic cholestasis of pregnancy (ICP), and preeclampsia or eclampsia.

The timing of clinical manifestations and abnormal liver tests is very important in determining the diagnosis, a rapid diagnosis can ensure timely treatment and minimize the risk to pregnant women and their fetuses/babies. Therefore, it is necessary to conduct liver function tests on pregnant women to determine the relationship. Liver function tests to measure enzyme activity in the liver include the Serum Glutamate Oxaloacetate Transaminase (SGOT) / Aspartate Transaminase (AST) Test and the Serum Glutamate Pyruvate Transaminase (SGPT) / Alanine Transaminase (ALT) Test. This examination can help determine the presence of liver function disorders and can help compile a differential diagnosis. Based on the explanation above, the author is interested in conducting a study entitled "Identification of Liver Function Disorders in Pregnant Women at the Mother and Child Hospital Pertiwi"

### METHOD

This study uses analytical observational research with a cross-sectional approach where the data taken is based on primary data, namely direct blood sampling of pregnant women at the Pertiwi Special Hospital for Mothers and Children. The population of this study were pregnant women patients at the Pertiwi Special Hospital for Mothers and Children. The sample of this study was pregnant women who underwent antenatal care at the Pertiwi Special Hospital for Mothers and Children. The sampling technique used in this study was non-probability sampling with a purposive sampling technique. The data analysis used in this study was univariate, using primary data obtained by patients at the Pertiwi Special Hospital for Mothers and Children and then analyzed using SPSS Statistics software.

### RESULTS

**Table 1.** Distribution of Samples of Pregnant Women with Increased AST and ALT Levels Based on Age

Age	Normal	Percentage (%)	No	Percentage (%)
			Normal	
< 20 years	0	0	1	3.3
20-35 years	26	86.7	0	0
>35 years	3	10	0	0
Total	29	96.7	1	3.3

(Source: Primary Data, 2024)

Based on table 3, the distribution of pregnant women samples based on age group. In pregnant women aged <20 years, there is 1 sample in this group that is in an abnormal condition (3.3%) and no samples are in a normal condition. In pregnant women aged 20-35 years, there are 26 pregnant women samples that are in a normal condition (86.7%) and none are in an abnormal condition. In pregnant women aged >35 years, there are 3

pregnant women samples that are in a normal condition (10%) and no samples are in an abnormal condition.

**Table 2.** Distribution of Samples of Pregnant Women with Increased AST and ALT Levels Based on Trimester of Pregnancy

Trimester	Normal	Percentage (%)	No Normal	Percentage (%)
Trimester 1	3	10	0	0
Trimester 2	1	3.3	0	0
Trimester 3	25	83.4	1	3.3
Total	29	96.7	1	3.3

(Source: Primary Data, 2024)

Based on table 4, the distribution of trimesters of pregnant women consists of trimester 1, trimester 2 and trimester 3. In trimester 1, there were 3 pregnant women with normal conditions.(10%) and none experienced abnormal conditions. In the second trimester, there was only 1 pregnant woman with normal conditions (3.3%) and none experienced abnormal conditions. normal. In the 3rd trimester, the majority of samples were in this trimester, with 25 pregnant women in normal condition (83.4%) and 1 pregnant woman in abnormal condition (3.3%).

### Discussion

Liver disease during pregnancy is a serious complication of pregnancy and poses a challenge to gynecologists and hepatologists. It occurs in about 3% of all pregnancies and can cause a variety of maternal and perinatal morbidities, some of which are fatal to both mother and child. The timing of clinical manifestations and liver function tests are critical in determining the diagnosis, as early diagnosis can ensure timely treatment and minimize risks to the pregnant woman and her fetus/infant.

Based on the results of the study, it was found that the majority of pregnant women who were samples had liver function in the normal category based on the results of Alanine Aminotransferase (ALT) and Aspartate Aminotransferase (AST) examinations. Of the total 30 samples, 96.7% had normal ALT and AST results, while 3.3% experienced an increase. This shows that impaired liver function in pregnant women at RSKD Ibu dan Anak Pertiwi is relatively rare. However, serious attention is still needed because impaired liver function, although rare, can cause serious complications during pregnancy, including the risk of liver insufficiency, fetal growth disorders, or other obstetric complications.

During pregnancy, there is a moderate decrease in hematocrit and albumin due to increased plasma volume and hemodilution. Therefore, alanine aminotransferase (ALT), aspartate aminotransferase (AST) are usually increased due to the production of the placental and fetal yolk sac. During pregnancy, Alanine Aminotransferase (ALT) levels usually increase to 2 to 4 times the normal limit. This is related to the production of placental isozymes. Pregnant women with increased alkaline phosphatase in this range do not require further examination. Diagnosis of liver disease during pregnancy can be difficult because pregnancy is accompanied by physiological changes that are similar to chronic liver

disease.

From the results of the study, pregnant women who experienced increased levels of AST and ALT were in the third trimester (3.3%). Trimester 3 is known as the most critical period, where the metabolic load of the liver reaches its peak. Blood volume increases significantly, fetal energy needs increase, and the possibility of complications such as cholestasis increases. Factors such as preeclampsia, HELLP syndrome, or metabolic disorders in pregnancy can affect liver function in this trimester.

In terms of age distribution, the results of this study indicate that pregnant women who experience increased AST and ALT levels come from the age group <20 years. The age of pregnant women can affect pregnancy health, where pregnancy in adolescence (<20 years) is at greater risk of complications, including liver dysfunction which can be caused by factors such as hormonal imbalance, nutritional status which is less than optimal, or the body's lack of physiological readiness to face pregnancy.<sup>39</sup>

The results of this study have important implications for the clinical practice of maternal health services. Routine liver function monitoring needs to be an integral part of antenatal care, especially in high-risk pregnant women or in the third trimester. This routine examination is not only intended to detect early liver dysfunction, but also to prevent more serious complications, such as liver insufficiency or fetal growth disorders. In addition, these findings highlight the importance of educating pregnant women about healthy lifestyles, including good nutritional intake, adequate hydration, and avoidance of toxic substances such as alcohol or non-prescription drugs that can worsen liver function.

Overall, this study provides an important contribution in understanding the health conditions of pregnant women, especially related to liver function, and supports efforts to improve the quality of health services at RSKD Ibu dan Anak Pertiwi. These findings are also relevant to guide preventive interventions and planning of antenatal services in the future.

## CONCLUSION

Based on the results of the study and discussion, it can be concluded that the majority of pregnant women examined at the Pertiwi Regional Special Hospital for Mothers and Children did not show liver dysfunction, as seen from the results of ALT and AST levels, most of which were in the normal category. Of the 30 samples tested, 96.7% showed AST and ALT results within normal limits, indicating that there were no significant abnormalities in liver function in pregnant women in this sample. There was only one sample with abnormal ALT and AST results, indicating that liver dysfunction in pregnant women, although it occurs, is a relatively rare occurrence in this population.

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