

JAUNDICE COMPLICATING PREGNANCY*

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and

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Introduction

Although pregnant women are not more susceptible to hepatitis and although the incidence of viral hepatitis in epidemic form is the same in pregnant and non-pregnant women yet, once jaundice develops during pregnancy, the prognosis both to the mother and the baby becomes uncertain. In severe grade of jaundice complicating pregnancy, maternal mortality rate is well over 80 per cent. According to most of the Western authors, jaundice in pregnancy is not of dangerous consequence; delivery of such cases may occur even at term and the average weight of the infant does not differ from those observed in normal delivery. When, however, jaundice in pregnancy is complicated by pyelonephritis or toxæmia then only the maternal and foetal results have been found to be worsened (Roszkowski *et al.*, 1968).

Quite contrary to this, jaundice has been found to be of grave prognosis when it occurs in pregnancy, irrespective of the trimester of its appearance, in the

Eden Hospital. Out of 202 cases of jaundice complicating pregnancy during the period of 1969 to 1972, 54 (26.7 per cent) patients died, directly due to the effect of jaundice e.g. either hepatic failure, or obstetric complications like postpartum haemorrhage. During this period the total number of confinements were 41164 in this hospital, thus giving an incidence of jaundice complicating pregnancy 0.48 per cent. The maternal mortality as whole, excluding abortions, during this period was 7.09 per thousand live births. According to important causes of maternal deaths 31.9 per cent in the present series of 1972 died of jaundice being followed by anaemia, 13.8 per cent, haemorrhage 11.1 per cent and eclampsia 4.1 per cent.

The most striking feature in Table I is the very high rate of maternal death from jaundice complicating pregnancy—23 out of 72 maternal deaths.

The present study is to investigate into the causative factors responsible for such appallingly high maternal deaths and to find methods, if any, either for diagnostic or therapeutic purpose, which can prevent this high maternal loss.

Material and Methods

The present study consists of 54 maternal deaths out of 202 cases of jaundice complicating pregnancy admitted during

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*Presented in the 17th All India Obstetric & Gynaecological Congress, held in Agra on 5th-7th February, 1974.

Received for publication 24-5-74.

TABLE I
Important Causes of Maternal Deaths

Year	Total deaths	Toxaemia		Severe anaemia		Jaundice		Haemorrhage	
		No.	Percent	No.	Percent	No.	Percent	No.	Percent
1969	55	16	29.0	3	5.4	12	21.8	7	12.7
1970	44	7	16.0	11	25.0	14	31.8	1	2.2
1971	47	7	15.0	7	15.0	5	10.6	2	4.2
1972	72	3	4.1	10	13.8	23	31.9	8	11.1

the four years period from 1969 to 1972 in the Eden Hospital, Medical College, Calcutta. Ninety-nine per cent of the patients in this series were unbooked. Out of 202 cases of jaundice complicating pregnancy occurring during the period 1969-72 only 73 cases in 1972 could be critically analysed. In the latter group there were 23 deaths (31.5 per cent) either directly due to the effect of jaundice e.g. hepatic coma or obstetric complication e.g., post-partum haemorrhage.

The following Tables show the distribu-

tion of the 73 cases of jaundice complicating pregnancy according to the age, parity, duration of pregnancy, and duration of suffering.

From the above Table it appears that the commonest age group of incidence of jaundice and highest mortality is between 20 to 30 years.

The above Table shows that the maximum incidence of the disease was in multigravidae, of which 70 per cent were 3rd and 4th gravidae.

TABLE II
Age

Age in years	No. of cases	Percent	Deaths	Percent
Below 20	13	17.8	3	12.5
20 to 30	52	72.2	16	74.0
Above 30	8	10.0	4	13.5
	73	100.0	23	100.0

TABLE III
Parity

Parity	No. of cases	Percent	Deaths	Percent
Primipara	5	8	2	8.5
P ₁ + 0	8	12	1	4.5
P ₂ + 0	9	13	2	8.5
P ₃ + 0	30	39	10	44.0
P ₄ + 0	18	24	6	26.0
P ₅ + 0 and above	3	4	2	8.5
	73	100	23	100.0

TABLE IV
Distribution According to Duration of Pregnancy

Duration of pregnancy	No. of cases	Percent	Deaths	Percent
Less than 32 weeks	8	12	2	8.5
32-36 weeks	47	64	18	78.5
37-40 weeks	18	24	3	13.0
	73	100	23	100.0

The above Table shows that the maximum incidence of jaundice was between 32 and 36 weeks of pregnancy (64 per cent) and the maximum number of maternal deaths occurred in this period of pregnancy (78.5 per cent).

From the above Table it is found that the maximum number of jaundice, 56 per cent was due to viral hepatitis. With proper investigations the cases which are mentioned under "Not determined" group may further be categorised into the pro-

TABLE V
Distribution of Cases According to Clinical Symptoms With Jaundice

Symptoms	Intensity and No. of cases		
	Mild	Moderate	Severe
Pruritus	6	22	45
Dispeptic symptoms	52	10	11
Jaundice	36	27 (death-15; 55%)	10 (death-8; 80%)

The above Table shows a close relationship between the severity of jaundice with intensity of clinical symptoms, particularly pruritus. The maternal mortality rate also runs parallel to the degree of jaundice.

This Table shows that the maximum number of deaths occurred between 24 and 48 hours after admission.

per heading, thus giving proper perspective of the type of jaundice and relationship with maternal death.

The above Table shows that the majority of cases had premature labour (42 out of 73 cases, 57 per cent). The second important complication in this series was P.P.H.—6 cases out of 73 (8.2 per cent) which might be due to devitalised state

TABLE VI
Distribution of Cases of Deaths According to Admission—Death Interval

Time in hours after admission	No. of deaths	Percent
Within 12 hours	1	4.5
12 to 24 hours	2	9.0
24 to 48 hours	8	34.5
48 to 72 hours	6	26.0
72 to 96 hours	5	21.5
After 96 hours	1	4.5

TABLE VII
Distribution of Cases According to the Types of Jaundice

Types of Jaundice	No. of cases	Percent	No. of maternal death	Per cent
Viral hepatitis	41	56	16	70
Idiopathic Cholestatic Jaundice	10	14	Nil	Nil
Toxaemia	6	8	1	4
Recurrent Cholestatic	2	3	Nil	Nil
Not determined	14	19	6	26
	73	100	23	100

TABLE VIII
Distribution of Cases According to Nature of Confinements

	No. of cases	Maternal deaths
Not confined	20	5
Confined	53	18
N.V.D.	51	
Forceps	1	
L.U.C.S.	1*	
	73	23

*This L.S.C.S. was done at 37 weeks of pregnancy in a case of recurrent cholestatic jaundice. The patient was 2nd gravida, past caesarean section with history of jaundice in the first pregnancy; baby died subsequently. This time L.S.C.S. was done as the jaundice could not be controlled inspite of conservative treatment and a living male baby was born.

TABLE IX
Distribution of Cases According to the Obstetric Complication

Obstetric complications	No. of cases
Premature labour	42
Postpartum haemorrhage	6
Obstetric shock	2
Eclampsia	1
Puerperal sepsis	1
Thrombophlebitis	8
Failure of lactation	4

of the mother with atonic uterus, superimposed by disorder in coagulation mechanism.

TABLE X
Distribution of Cases According to Causes of Maternal Deaths

Cause	No. of deaths	Percentage
Hepatic coma	17	73
Eclampsia	1	4.5
P.P.H.	2	9
Puerperal sepsis	1	4.5
Unknown	2	9

The above Table shows that hepatic coma is the commonest cause of death in this series, the occurrence of which is most unpredictable and in the majority of cases it was precipitated following labour.

Discussion

The liver is rarely affected adversely due to metabolic changes of normal pregnancy (Rickman, 1960). Except in toxæmia with involvement of liver, and coincidental viral hepatitis, there is usually no evidence of hepatic dysfunction. However, in the course of normal pregnancy certain variation in the structure and function of liver may occur which reflect

TABLE XI
Distribution of cases showing foetal outcome

Foetal outcome	No. of cases	Perinatal Death
Stillbirth	16	} 46 (out of 73—5 = 68 cases)
Neonatal death	30	
Prematurity	24	
Haemorrhagic disorder	1	
Asphyxia neonatorum	3	
Undetermined	2	

the response of the liver to the increased need of the mother and the foetus in utero. In the biochemical test of liver function numerous minor alterations have been noted which are most evident in the later months of gestation and which disappeared after delivery.

The liver may show evidence of injury in pregnancy as a result of factors directly related to the pregnancy or due to some associated factors in pregnancy. The following classification of jaundice complicating pregnancy is helpful both from prognostic and therapeutic points of view:

A. *Liver disease due to pregnancy*—

1. Hyperemesis Gravidarum — rare cause.
2. Toxaemia of pregnancy particularly eclampsia—rare cause.
3. Idiopathic jaundice of pregnancy and recurrent cholestasis—good prognosis.
4. Acute fatty liver—poor prognosis (relation to Tetracycline therapy).

B. *Coincidental liver disease*

1. Viral hepatitis—prognosis is worse in pregnant than in non-pregnant state—stillbirth rate high. Sometimes associated with massive hepatocellular necrosis.
2. Biliary tract disease—surprising-

ly rare as a cause of jaundice in pregnancy.

3. Hepatotoxic drugs—Chlorpromazine may cause prolonged cholestasis, precipitating clinical jaundice.
4. Haemolytic Jaundice—rare condition.
5. Pre-existing liver disease, e.g. cirrhosis—pregnancy very rare.

Hyperemesis Gravidarum

Jaundice in hyperemesis is rare in present day obstetrics as the hyperemesis should be cured before the liver undergoes that amount of fatty necrosis as to give rise to jaundice. Once jaundice develops the prognosis is bad, and termination of pregnancy may be justified after correction of fluid and electrolyte balance.

Toxaemia of pregnancy

Although abnormal tests of liver function, such as serum alkaline phosphatase and transaminase are common in toxaemia jaundice is rare. Toxaemia cannot be regarded as primarily involving the liver; the liver damage of eclampsia is a terminal event. Jaundice in toxaemia is rare. Here again the patient should not be allowed to go up to the stage of massive hepatocellular necrosis. Termina-

tion of pregnancy in an earlier stage is justified, but once jaundice is developed in eclampsia or in severe pre-eclamptic toxæmia, the prognosis becomes grave.

Idiopathic Jaundice of Pregnancy and Recurrent Cholestatic Jaundice

This type of obstetric (Cholestatic) jaundice appears in the last trimester of pregnancy (Sherlock, 1970). In the mildest form, jaundice is absent and the only feature is pruritus. Many patients experiencing generalised itching in the last weeks of pregnancy may be suffering from this condition and need thorough investigation (Donald, 1969). Jaundice is rarely deep, urine is dark and stool is pale; the general health is preserved and there is no pain. The liver and spleen are not palpable. After delivery jaundice disappears and within one or two weeks the pruritus ceases. The condition may recur in subsequent pregnancies. The prognosis for the mother and the child is generally not too bad. Etiology of this condition is unknown; it probably represents an unusual cholestatic reaction to a steroid produced in pregnancy. In the first pregnancy a diagnosis of Idiopathic Cholestatic jaundice from viral hepatitis and other condition causing jaundice may be difficult. Sometimes diagnosis may be settled only after delivery by the disappearance of the icterus.

Acute Fatty Liver

Sheehan (1940) was the first to suggest that there is a specific type of severe jaundice in pregnancy which he called obstetric acute yellow atrophy of the liver, but others mentioned it as acute fatty liver of pregnancy. It was previously considered to be a manifestation of pre-eclampsia, but now it is accepted to be an end-result of viral hepatitis and

this malady bears no relationship with pre-eclampsia (Barnes, 1965). During the last trimester the mother develops jaundice, severe nausea, vomiting, severe haematemesis, abdominal pain, headache and stupor. Death is the usual outcome but survival is also reported. This type of severe jaundice is related to protein malnutrition and particularly to the depression of protein synthesis caused by certain drugs, particularly the tetracyclines. That is why it is advisable to avoid the use of tetracyclines especially intravenously during the last trimester of pregnancy. The risk of liver damage is greatest specially when the patient has got pyelonephritis or is undernourished. The differential diagnosis of this condition from viral hepatitis can be difficult. Treatment is symptomatic for hepatic and renal failures.

Viral Hepatitis

This was the commonest type of jaundice complicating pregnancy in the present series. The agent causing this common type of jaundice remains to be identified. The common experimental animals are not susceptible and there is no specific diagnostic test. Only the history of epidemic of viral hepatitis can clinch the diagnosis, as was reported in the Delhi epidemic (Naidu and Biswanathan, 1957; Malkani and Grewal, 1957). It is more commonly found in women coming from low economic group living in unhygienic surroundings and drinking unfiltered water. If it is considered necessary to confirm the diagnosis, needle biopsy can be performed (Sherlock, 1968). Although according to Sherlock (1970), viral hepatitis in pregnancy runs the same course as in non-pregnant women, our observation was quite contradictory to this finding. There is

higher incidence of abortion and premature labour in pregnancies complicated by viral hepatitis (Martin, 1953). The perinatal mortality depends not on the mother's disease but on the maturity of the foetus (Haemerli, 1966).

The treatment in viral hepatitis in pregnant women should be prophylactic; adequate antenatal supervision, maintenance of nutrition by high protein, high carbohydrate diet supplemented by vitamins constituted the best regime. Women who have been exposed to hepatitis, should be given Gamma-globulin 0.1 ml. per kg. of body weight. (WHO, 1964).

For fully developed disease, bed rest, high carbohydrate diet supplemented by vitamins are the essentials in the management. The nutrition should be maintained by administration of 10% glucose 3 to 4 pints in 24 hours. Administration of Nicotinaemide and Tocopherol, may be justified. For sedation, paraldehyde may be used parenterally.

When improvement in the general condition occurs, fluids and vitamins may be given by mouth. Vitamin K should be given in cases of hepatic coma where there is chance of hypofibrinogenaemia.

Antibiotics are of no specific value except in the presence of a complicating bacterial infection. However, Aureomycin or Neomycin may be used to combat secondary infection.

Use of corticosteroids in such cases, particularly in hepatic coma may be justified with the object to protect against massive hepatic necrosis.

Foetal Gonadal changes due to use of corticosteroids in early pregnancy although a possibility, is ultimately of no concern in consideration to the gravity of maternal illness.

Termination of pregnancy is not justi-

fied whatever may be the duration of pregnancy; rather it should be avoided as the operation itself may adversely affect the liver which is already damaged (Browne and Browne, 1960).

Homologous Serum Jaundice

This is due to viral hepatitis and may be contracted from blood or plasma transfusion or direct inoculation of the virus by a syringe or needle used for injection, Venepuncture, finger puncture or lobule puncture. Disposable syringes should be used in antenatal clinics, particularly when Tetanus Toxoids are given on mass scale to all pregnant mothers.

Gall Stones

The association of gall stones giving rise to jaundice in pregnancy is surprisingly rare. The clinical picture does not differ from that of non-pregnant cases and the management should be the same.

Toxic Drugs

Pregnant women can react to drug causing jaundice in an exaggerated way as manifested with the use of tetracyclines, chlorpromazines, anaesthetic agents like ether, chloroform, sulphonamides and phenacetines. Therefore, selection of drugs, particularly in the first trimester should be done with utmost care.

Summary and Conclusion

In conclusion it may be postulated that jaundice in pregnancy in our country behaves in a different way having a deleterious effect both on mother and baby. This observation is quite contradictory to the findings of many of the Western authors.

Considering that jaundice was the

commonest killer of mothers in the Eden Hospital in 1972, an all out effort should be made to have comprehensive idea about the epidemiological aspect, physiological changes, diagnostic problems and proper therapeutic approach to this dreadful disease complicating pregnancy.

Acknowledgement

The authors are grateful to Prof. B. K. Chakravarty, M.Sc., M.D., Ph.D. (Cal), Principal cum Superintendent, Medical College and Hospitals, Calcutta, for necessary permission to use the hospital records. Thanks are also due to Prof. M. Konar, M.B., D.G.O. (Cal), F.R.C.O.G., Professor and Head of the Department of Obstetrics and Gynaecology, Medical College, Calcutta for her kind suggestions.

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