J. Obstet. Gynaec. India Vol. 51, No. 5 : September/October 2001 Pg 44-46

Pregnancy and Aplastic Anaemia

Cecil Ross, Sangeeta Saksena, Rita Mhaskar

Dept. of Medicine and Dept. of Obstetric & Gynaecology, St. John's Medical College Hospital, Bangalore

Summary

Aplastic Anaemia (AA) is a rare disorder. Since the 1st description in 1888 by Ehrlich only about 82 cases have been described in pregnancy. We report 6 cases diagnosed and managed between 1990-1998.

Untreated AA has 50% mortality. We had 33% maternal mortality and 50% pregnancy wastage. Availability of blood components has improved the prognosis of the disease but making the best choice with regards pregnancy management remains ambiguous due to the lack of a definite causal relationship between the two entities. In our study of 6 patients, 2 had worsening of AA during pregnancies with spontaneous recovery after delivery and 1 patient, a primigravida, had AA during pregnancy with spontaneous recovery thereafter. Two patients died during/immediately after their 1st pregnancy and no association could be made. No association with pregnancy was apparent in 1 patient. In case of no improvement in blood counts with blood component transfusions, pregnancy is terminated in maternal interest. Treatment with cyclosporine is undertaken in case of no spontaneous remission after delivery. Bone marrow transplant is an attractive option in the non-pregnant state.

Introduction

Aplastic anaemia (AA) is a marrow failure syndrome characterized by pancytopenia in peripheral blood and a hypocellular marrow. It was first defined as a clinical entity by Ehrlich in 1888 in a pregnant woman. However it is difficult to be certain about a definite causal relationship between pregnancy and AA. Aplastic anaemia diagnosed in pregnancy is a serious event with risks to both mother and foetus. However, better understanding of (AA) in the past decade, the availability of blood components and antibiotics has improved the prognosis of this disease. We describe 5 cases of AA presenting in pregnancy and 1 in the post partum period.

Materials and Methods

Between 1990-1998, 86 patients were diagnosed as aplastic anaemia. The criteria used for diagnosis were cytopenia in the peripheral blood with at least two of the following three criteria (a,b,c,) and a marrow biopsy as proposed by the International Agranulocytosis and Aplastic Anaemia study (1987).

a) Hb < 10 gm/dl (b) Platelet count < 50 x 10^9/l (c) Leukocyte count < 3.5 x 10^9/l or granulocytes < 1.5 x 10^9/L and a bone marrow biopsy showing

1) decreased cellularity with absence or depletion of all hemopoietic cells or normal cellularity due to focal erythroid hyperplasia with depletion of granulocytes and megakaryocytes.

2) absence of significant fibrosis or neoplastic infiltration.

A retrospective analysis of all patients with pregnancy and aplastic anaemia was done.

Results

There were 86 cases of AA diagnosed at SJMCH over a 8 year period, 34 patients were females and 52

Table I: Brief Description of Patients with Aplastic Anaemia

Sl. no	Age	Parity	Past H. of AA	Signs & Symptoms	Gest.--ation	Time	Lab values Hb g/dl	TC /ul	Platelet /ul	Treatment	Pregnancy Outcome	Post pregnancy follow up
1	24	G3P0L0 A2	+ since 1986 2 abortions in 1989 and 1990	retinal bleed, blurred vision in non preg state. Pancyto penia in preg	12 wks	At first presentation in 1990	10	2500	30,000	Cyclosporin in non pregnant state	MTP	Partial recovery, Pre-existing AA appears to worsen during pregnancy
						After CSA 12wks	11.3	3000	66,000			
						Preg 12wks after MTP	9.1 10.0	2600 3500	30,000 75,000			
2	27	G1 P0 L0A0	Nil	Fatigue, bl gums, Echymosis for 2 wks	12 wks	At 12 wks preg	5.2	4200	5,000	Transfusion of blood and platelets	Died while pregnant at 12 weeks gestation	Primigravida-hence no association could be made between AA & pregnancy
3	28	G2 P1 L1 A0	+ in prev preg	Pallor CCF	29 wks	At 28 wks	4.3	2,200	8,000	Transfusion of Blood & platelets, correction of CCF	FTND, female baby, alive &well	AA recurred in both pregnancies with spontaneous recovery after delivery
						2 wks post deliv	9.2	3,200	22,000			
4	24	G4 P1 L1 A2	+ In one prev preg	Pallor, b1 gums, in preg CCF	34 wks	At 34 wks	3.4	4,500	10.000	Transfusion of Blood and Platelets, Correction of CCF	Papilloedema & cerebral oedema on 6th day. Induction of labour. Vaginal delivery Female, 1.3 kg, A/W PPH-Mx with Transfusion	partial recovery-no definite association of AA with pregnancy
						2 wks post deliv	9.2	6,500	5,000			
5	32	G1 L0 L0 A0	-ve	Pallor, CCF	Post partum 2 wks	At 2 wks post deliv	5.8	1,800	25,000	Transfusion	FTND, Baby alive & well Patient died 6 days after admission	patient unstable, CSA not started. Primi – no association of AA with preg made
6	24	G1 P0 L0 A0	-ve	PIH Purpuric rash pallor	28 wks	At 28 wks	7.5	2,400	10,000	Transfusion	IUD at 32 wks – spontaneous vag delivery – male, 750 gms, IUGR	PN 2 wks – had seizures-CT scan showed Parieto occipital granuloma – Gardinal started 1mth later, recovered spontaneously from AA
						At 32 wks P N	9.1	5,100	23,000			
						2 wks P N	10	5,100	23,000			
						6 wks	10.2	4,000	1.1 lakhs			

All patients had bone marrow biopsy suggesting Aplastic Anaemia
CSA=Cyclosporin PIH=Pregnancy Induced Hypertention
PN=Postnatal CCF=Congestive Cardiac Failure

were males. Eighteen women were in the reproductive age (15-44 yrs) at time of diagnosis. Five women were pregnant at the time of the bone marrow study. One was in the post partum period. These 6 cases form the subjects of this study. None of them had exposure to drugs/viral infections/hepatitis.

All of them tested negative for the serological tests including DCT, ICT, ds DNA, anticardiolipin antibody, antinuclear antibody and Ham's test.

A brief description of the 6 cases and their management is detailed in Table 1.

Discussion

According to van Besien (1991) the relationship between AA and pregnancy remains controversial. Many case reports (Suda et al, 1978; Aitchison, 1989; van Besien et al, 1991 and Young and Macegeioski, 1997) have described AA in pregnancy. That pregnancy is an etiological factor in AA is supported by description of spontaneous haemotological improvements following induced abortions or delivery/relapse on subsequent pregnancy (van Besien et al, 1991). In addition pre-existing AA is worsened in pregnancy. Pregnancy is postulated to cause AA by hormonal mechanisms (Evans, 1968). One may speculate that the immunological stress of pregnancy on a subclinically damaged marrow may play a part but there are no good data to support any of these hypothesis. The paucity of cases is apparent from periodic literature reviews. Pregnancy is mentioned as a possible cause of AA in recent review articles by Young & Macegeioski (1997) and Eva C G (1997) and hence there is a case for termination of pregnancy. However Suda et al (1978) have felt that the association is coincidental and pregnancy should be allowed to continue.

Women who have pre-existing AA should be cautioned of the risk of relapse and possible need for termination of pregnancy despite being in remission as in our case 1. Management depends on the stage of pregnancy at which pancytopenia develops and on maintaining mother's blood count. It is essential to monitor foetal growth and development where pregnancy is allowed to continue with blood support. We have preferred to deliver the baby vaginally by providing maximal blood support at the time of delivery.

In view of the different profiles of our patients, we believe that there are 3 subsets of AA in pregnancy.

1) Pregnancy induced AA
2) Pregnancy associated AA
3) Transient marrow suppression induced by pregnancy

According to Aitchison et al (1989), anti-lymphocyte globulin may be safe in pregnancy. Bone marrow transplant, a treatment given to such patients in non-pregnant state has not been performed during pregnancy. Earliest report of marrow transplant is one in a 6 weeks post partum patient by Doney K et al (1985).

The disease is potentially fatal and hence if there is no improvement in blood counts after replacement with blood components termination of pregnancy should be done in the mother's interest.

Treatment after delivery with cyclosporine is undertaken if there is no spontaneous remission of the disease.

Acknowledgement

We are grateful to the Medical Superintendent of St. John's Medical College Hospital for allowing us to use hospital data for this study.

References

1. Aitchison RGM, March JCM, Hows JH, Russell NH & Grogon smith EC, Br. Jr. Haematol, 73;; 541; 1989.
2. Doney K, Storb R, Buckner CD, Sanders J, Witherspoon R, Thomas E D: Haematol 13: 1080; 1985.
3. Ehrlich P, Ueber Einen Fall Von, Charite Annalen 13; 300, 1888.
4. Eva CG, Hemat/Oncol Clinics of N. America, 11; 1025; 1997.
5. Evans IL, Br. Med. Jr. I, Vol 3; 166, 1968.
6. Fleming AF, Clinics in Haematology, 2, 477, 1973.
7. Suda T, Omine M, Tsuchiya J & Macekawa T, Blut: May 18, 36: 285; 1990.
8. The International Agranutocytosis & aplastic anaemia study: Blood 70; 1718; 1987.
9. Van Besien K, Tricot G, Golickwski A, Padilla L, Hoffman R: European Jr. of Haematol 47: 253; 1991.
10. Young NS, Macegeioski J, New Eng J. Med 336: 1365; 1997.