teinemia is considerably increased by using the latter test. After confirmation of the existence of hyperhomocysteinemia, other tests to study its possible origin (such as folate and vitamin B6 and B12, and investigation of renal function) as well as its treatment should be considered.

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Key words

Homocysteine, venous thrombosis, cardiovascular disease

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Percutaneous umbilical blood sampling in the management of immune thrombocytopenic purpura during pregnancy

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Severe neonatal thrombocytopenia occurs in about 15% of deliveries from women with immune thrombocytopenic purpura (ITP). Conflicting data exist about the real usefulness of percutaneous umbilical blood sampling (PUBS) in evaluating the fetal platelet count. We report successful experience, using PUBS, in the management of 12 pregnant women with ITP.

Immune thrombocytopenic purpura (ITP) is a common autoimmune disorder of young women, accounting for 3% of all cases of thrombocytopenia at the time of delivery.[1] ITP in pregnancy can cause an impairment of maternal, fetal or neonatal hemostasis. A maternal platelet count of $>30\times10^9$/L is only rarely associated with severe hemorrhage in pregnancy, during vaginal delivery or Cæsarean section.[2] There is some debate as to the real risk to the fetus and neonate, regardless of maternal or fetal platelet count or the route of delivery.[2-4] Reported data show a 15% incidence of severe neonatal thrombocytopenia (platelet count $<50\times10^9$/L), and a 1.5% incidence of intracranial hemorrhage (ICH).[5] However, other authors have documented a lower incidence of severe neonatal thrombocytopenia without any hemorrhagic complications.[1] Although some clinical and laboratory parameters have been proposed as being helpful in the identification of those pregnant women with ITP at risk of giving birth to severely thrombocytopenic neonates,[6] conclusive data are lacking.

Scioscia *et al.*[7] demonstrated the usefulness of percutaneous umbilical blood sampling (PUBS) in predicting fetal platelet count. PUBS may guide the mode of delivery and obviate unnecessary Cæsarean sections when fetal platelet count is $\geq 50\times10^9$/L. However, PUBS carries a risk of 1-2% of causing intrauterine fetal death or the need for urgent delivery.[7,8]

Our experience concerns 12 pregnant women (median age 30 yrs, range 21-39 yrs) submitted to PUBS. None had hepatitis B, C or HIV. Seven patients had a previous diagnosis of chronic ITP, whereas the other 5 were diagnosed during pregnancy (median time of diagnosis 18th week, range 8th-31st week) according to McMillan's criteria.[9] Six patients were primigravida and 6 multipara, 3 of whom had previously delivered a thrombocytopenic neonate. Patients in whom PUBS showed a fetal platelet count $< 50\times10^9$/L were submitted to Cæsarean section. PUBS was most often performed during the 38th-39th week of pregnancy (Table 1) with a 20 gauge needle.

Fetal blood sampling was successfully achieved in all 12 patients without any complications. Three fetuses with a platelet count $< 50\times10^9$/L were delivered by Cæsarean section. Spontaneous vaginal delivery was allowed to occur in all the other cases. Fetal and neonatal platelet counts always correlated. The interval between PUBS and delivery ranged from 0-7

Table 1. Clinical and laboratory data of 12 pregnant women with ITP and those of fetuses/neonates monitored by PUBS.

Pt.	PUBS (week)	Maternal Plt count (10^9/L)	Fetal Plt count (10^9/L)	Neonatal Plt count (10^9/L)	Maternal therapy	Mode of delivery	Bone aspirate	Anti-Plt Ab PaIgG/ SBIgG
1	39	83	210	238	C	Spon	Yes	-/-
2	36	20	15	54	C, Ig	Cs 37	Yes	+/+
3	38	88	48	33	/	Cs 38	Yes	+/+
4	39	73	376	300	/	Spon	Yes	-/+
5	38	56	60	100	C	Spon	Yes	-/+
6	38	81	282	243	C	Spon	Yes	-/+
7	38	80	268	231	C	Spon	Yes	-/+
8	39	66	203	257	C, Ig	Spon	Yes	+/+
9	38	76	47	52	C	Cs 39	Yes	+/+
10	35	29	245	210	C	Spon	Yes	+/+
11	39	44	230	205	C	Spon	Yes	+/+
12	38	45	130	110	C	Spon	Yes	-/-
Median		69.5	206	207				
Range		20-88	15-376	33-300				

Abbreviations: C = corticosteroids; Ig = high dose immunoglobulin; Cs = Cæsarean section; Spon = spontaneous full-term delivery.

days. The three severely thrombocytopenic neonates did not manifest a hemorrhagic syndrome and spontaneously recovered a normal platelet count within 2 weeks. Occasional fetal morbidity or mortality from hemorrhagic complications of ITP during pregnancy encourage some authors to favor the use of PUBS.[7, 10] Other authors argue that the risks associated with PUBS are greater[2,4] and recommend determining the route of delivery by maternal obstetric indications.

Our encouraging experience provides further evidence that in skilled hands PUBS may be useful in the management of pregnant women with ITP, providing a safe way to guide the mode, site and time of delivery.

Key words

Immune thrombocytopenic purpura, pregnancy, percutaneous umbilical blood sampling

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Adenovirus pneumonitis successfully treated with intravenous ribavirin

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Adenovirus infections are a frequent cause of severe complications in the post allogeneic bone marrow transplantation period, and to date, no established form of treatment exists. We report the case of an autologous bone marrow transplant recipient who developed adenovirus pneumonitis which was successfully treated with intravenous ribavirin.

Since conditioning regimens largely ablate virus specific immunity, there may be a reactivation of latent viruses such as adenovirus. The incidence of adenovirus infection in BMT recipients, according to the largest published review was 5%[1] although it may be as high as 18 % in the pediatric population, in second place after herpes simplex.[2] When disseminated adenovirus infection occurs, it mainly affects the urinary tract, liver, gut and lungs, and can prove fatal in half the cases.

Adenovirus is more common after an allogeneic transplant, and a significant relationship between post-transplant adenovirus infection and the occurrence of acute graft-versus-host disease has been described.[1] We present the case of a patient who developed adenovirus pneumonitis after undergoing an autologous BMT, and who was successfully treated with intravenous ribavirin.

A 43-year-old man with acute myeloid leukemia in first remission underwent autologous BMT using TBI (13.2 Gy) and CY 60 mg/kg two day conditioning. On day 0, 300 cc of autologous bone marrow was infused with CMN 2.17×10^8/kg and CFU-GM 4.34×10^4/kg. On day +20, after persistent fever without an identifiable focus treated with imipenem-teicoplanine-amphotericin B, he developed a persistent non-productive cough, dyspnea, hypoxemia, a