

Revised 7/03

PROTOCOL #13 - Maternal Fetal Medicine, University of New Mexico

## GUIDELINES FOR MANAGEMENT OF PREECLAMPSIA

### A. General

While there are several ways of managing preeclampsia, or pregnancy-induced hypertension, it is important that a perinatal team adopt one management approach as this will assure continuity of optimal care under the circumstances where various members of the team may be involved at various times.

### B. Diagnosis

1. In a patient with no prior history of hypertension, a BP  $\geq 140$  systolic or  $\geq 90$  diastolic, plus proteinuria of  $\geq 300$  mg in a 24-hour collection, is sufficient to make the diagnosis. BP must be elevated on at least 2 occasions 6 hours apart.
2. In a patient with a history of hypertension, an increase in BP of  $\geq 30$  mm Hg systolic above “booking” or prepregnancy values, or  $\geq 15$  diastolic, in association with new-onset proteinuria OR hyperuricemia, is required for diagnosis. As above, BP must be elevated on at least 2 occasions 6 hours apart; proteinuria is as defined above.
3. Although for research purposes a category of “transient gestational hypertension” has been established (viz., hypertension without proteinuria, which returns to normal within 6 weeks after delivery), this is seldom useful in the clinical setting.

### C. Classification

The classical distinction between mild and severe preeclampsia is still useful from the therapeutic point of view. Preeclampsia is classified as severe if any one of the following signs or symptoms is present:

1. Blood pressure of 160 or more systolic or 110 or more diastolic
2. Proteinuria of 5 gm or more/24hours
3. Oliguria (400 ml or less/24 hours)
4. Cerebral or visual disturbances
5. Pulmonary edema or cyanosis
6. HELLP syndrome

HELLP Syndrome will be diagnosed in the presence of:

- A. Hemolysis, defined by abnormal peripheral smear, increased bilirubin,  $\geq 1.2$  mg per deciliter, and increased lactic dehydrogenase,  $> 900$  units per liter.
- B. Elevated liver enzymes, defined as increased SGOT  $\geq 70$  units per liter.
- C. Low platelets, defined as platelet count  $< 150 \times 10^3$  per  $\text{mm}^3$ .

If none of the above signs or symptoms is present the preeclampsia is classified as mild. The onset of convulsions or coma in a patient with evidence of preeclampsia establishes the diagnosis of eclampsia. It must be recognized, however, that the outlook in any given case cannot be easily established. Blood pressure alone is not a dependable indication of severity. A clinical picture of such variety cannot be classified as mild or severe by any one or two criteria.

## PROTOCOL #13 - GUIDELINES FOR MANAGEMENT OF TOXEMIA OF PREGNANCY

### D. Therapy

#### 1. Antepartum

In those patients for whom expectant treatment is decided upon, follow instructions under Protocols on Expectant Treatment of Severe or Mild Preeclampsia.

#### 2. Intrapartum

- a. IV(isotonic crystalloid) at 100 ml/hr
- b. Foley catheter .
- c. Hourly output should be maintained at >30 ml/hr. Inadequate urine output ( $\leq 25$  ml/hr) for two hours should prompt administration of a fluid load, unless the patient has evidence of pulmonary edema. An adequate fluid load equals 500 ml of an isotonic crystalloid solution (NS or RL) given over 15 min. If this is insufficient to restore urine output, consider initiation of central monitoring, which will usually mean a pulmonary artery catheter. A response to a fluid load is not, however, an indication to increase the rate of IV fluid administration, since no more than 25% of isotonic fluid can be found in the circulation by 1 hour after administration: which is to say, extravascular water is increased in preference to the effective circulating volume, thus predisposing to pulmonary edema. An alternative to repeated fluid loading may be administration of a vasodilator, in order to improve renal perfusion.
- d. Hourly assessment of the patient's fluid status, including auscultation of the lungs, is indicated.
- e.  $MgSO_4$ , 4 gm by IV push loading dose to be followed by a maintenance IV drip of  $MgSO_4$  at 2g/hr. Intact deep tendon reflexes and adequate respiratory effort should be assured. The vehicle for IV  $MgSO_4$  should be D5W. Total IV fluid intake should be regulated by the urinary output so as not to overload the patient.
- f. Have Ca gluconate readily available when administering  $MgSO_4$ . If necessary, give 1 g IV over three minutes (10cc of a 10% solution).
- g. Labetalol or hydralazine may be used (see Protocol #14A) for persistent diastolic blood pressure elevations  $\geq 110$ .
- h. PT and PTT are indicated if the platelet count is less than 100,000 or if the patient has a history or clinical findings suggestive of a coagulopathy.
- i. Since magnesium is renally excreted, patients at risk of renal dysfunction (e.g., severe hypertension, oliguria) are therefore at risk of magnesium toxicity; a baseline serum creatinine is indicated in such individuals.
- j. Induction of labor or cesarean section should be preceded by at least two hours of therapy, and/or until adequate levels of  $MgSO_4$  are obtained, unless there are overwhelming clinical reasons to proceed to delivery more expeditiously.
- k. Severe HELLP syndrome, whether antepartum or postpartum, may have resolution speeded by a course of steroids: the regimen described is dexamethasone 10 mg q12 hr till delivery; or postpartum 10 mg-10mg-5mg-5mg at 12-hour intervals.

In cases of intrapartum preeclampsia, usually manifested solely by a persistent elevation of blood pressure, the recommended approach is to cover patients with  $MgSO_4$  following the dosage schedule described above. Ergot alkaloids should not be used postpartum.

## PROTOCOL #13 - GUIDELINES FOR MANAGEMENT OF TOXEMIA OF PREGNANCY

There is now, however, some precedent for withholding magnesium sulfate in cases of mild preeclampsia diagnosed intrapartum, in that the number needed to treat (to prevent 1 case of eclampsia) is about 350. The attending physician may, under certain circumstances, elect not to administer magnesium to a mild preeclamptic.

### E. Postpartum

1. Coagulation parameters should be checked as dictated by the clinical situation. It is seldom necessary to repeat at 4- or 6-hourly intervals.
2. I & O should be maintained for at least 24 hours. If necessary a Foley can be inserted in the delivery room immediately postpartum.
3. Patient can have BRP with assistance. Patients on MgSO<sub>4</sub> postpartum require a Foley catheter during this time for accurate I&O; measuring spontaneously voided volume is, however, adequate once the patient is off MgSO<sub>4</sub>.
4. Blood pressure should be closely monitored for at least 48 hours or until it returns to normal levels.
5. Therapy should be continued for at least 12 hours post delivery or until there is evidence of amelioration of the disease. MgSO<sub>4</sub> may be discontinued 12 to 24 hours postpartum depending on the patient's condition.
6. In patients initially manifesting evidence of **preeclampsia** during the postpartum period, **MgSO<sub>4</sub> should be administered for 24 hr from time of diagnosis.**
7. **Patients with BP persistently >105 diastolic or 170 systolic may warrant a trial of oral antihypertensive medication for up to six weeks postpartum.**
8. **Outpatient planning should include home BP monitoring at least 2x per week. A patient who was discharged home on antihypertensive meds should be seen in 2-4 weeks rather than at 6 weeks.**

### References

Magann EF et al. Postpartum corticosteroids: accelerated recovery from HELLP syndrome. Am J Obstet Gynecol 1994; 171: 1154-58

Magann EF et al. Antepartum corticosteroids: disease stabilization in patients with HELLP syndrome. Am J Obstet Gynecol 1994; 1148-53

MAGPIE Trial Collaboration Group. Do women with preeclampsia, and their babies, benefit from magnesium sulphate? The Magpie Trial: a randomized placebo-controlled trial. Lancet 2002; 359: 1877-90

Report of the National High Blood Pressure Education Working Group on High Blood Pressure in Pregnancy. Am J Obstet Gynecol 2000; 183: S1-22

ACOG Technical Bulletin #219. Hypertension in pregnancy. 1996

**CONSULTATION:** Twenty-four hour consultation concerning this test or other considerations is available by calling the UNMH Perinatal Center at 1-888-866-7257.