

# PREGNANCY INDUCED HYPERTENSION IN THE JHH ICU

## 1. Criteria for admission to ICU

These patients will have features of severe PIH and associated organ dysfunction . Admission must be discussed with obstetrician. Transfer or retrieval of women with PIH who potentially could be in labor during transport must be discussed with on duty perinatologist.

### Criteria indicating severe disease

Diastolic BP > 110 mmHg (NB 20% of eclamptic and 15% of patients with HELLP syndrome are normotensive)

Systolic BP > 160 mmHg

Proteinuria ( 3+ by urinalysis)

Oliguria (<0.5 mls/kg/hr for 2 hours not responsive to 500ml of saline)

Headache or visual disturbance

Epigastric or right upper quadrant pain or elevated liver transaminases

Pulmonary oedema

Coagulopathy, haemolysis or low platelet count (<100,000 /microlitre)

Seizure

The patients will generally be greater than 20 weeks gestation

## 2. Baseline Investigations

Biochemistry - UEC, LFT, Urate, Mg, Ca, LDH

Haematology - FBC, Coags, peripheral film for haemolysis (if indicated)

## 3. Monitoring

Continuous cardiac and oximetry

NIBP , arterial line if on vasodilator infusion

CVP ( if SOB or persistent oliguria)

IDC with hourly measures

CTG 4-8 hrly

#### **4. Treatment**

**Vasodilation** Vasodilation to reduce but not normalise BP. Hydralazine by infusion is the agent of first choice in this unit ( see ICU hydrallazine protocol). Mean BP should not be reduced below 100 mmHg ( about 140/90). The aim is to reduce BP by vasodilation but to maintain volume status by monitoring volume status (CVP). Fluids to use are either saline or colloid and used cautiously. Placing a CVC and monitoring central venous pressure is necessary if persistent oliguria. The CVP should be only modestly elevated (5 - 8 mmHg)..

Urine output should be at least 0.5ml/kg/hr.

Additional agents that may be used to control difficult BP are sodium nitroprusside or beta blockade.

**Seizure control** If headache , visual disturbance and severe hyperreflexia, then at increased risk of eclampsia (seizure). The prophylactic agent of choice is magnesium by infusion. (see ICU magnesium protocol). (NB although Mg may decrease BP it is not initiated for BP control).

**Magnesium infusion must be closely monitored with magnesium level assays every 6 hours and hourly nursing assessment of patella reflexes.**( refer to toxicity information in Mg infusion protocol). Infusion rates should be reduced in the presence of oliguria ( 50% of standard rate). Cease for one hour after any hour with urine output less than 0.5ml/kg/hr.

Alternative to Magnesium is phenytoin , but is less effective in seizure prevention. This should be considered for retrievals to reduce complexity in transport. 1 gm phenytoin is infused over 1 hour in a dextrose free solution.

Convulsions should be stopped with iv diazepam or midazolam. Convulsions carry a high risk of foetal mortality. Delivery should be accomplished after stabilization

**Nursing** The patient should be nursed in a lateral tilted or full lateral position at all times. Minimum is a litre of saline under one hip.

**Other complications** Thrombocytopenia - does not require platelet transfusion unless < 50,000 prior to caesarian section. Haematologist will need to be contacted if platelets required. If falling platelets associated with deteriorating renal function particularly after delivery, HUS/TTP must be considered and haematologist consultation is advisable to look for RBC fragmentation. Major coagulopathy requires consultation with haematologist and use of clotting factors.

**Pulmonary oedema** Requires oxygen with addition of mask CPAP or IPPV as indicated.

## **Post Delivery management**

Condition may worsen post delivery. BP control may be pursued more aggressively and oral agents such as captopril or calcium antagonist may be used.

Magnesium infusion should be continued for a minimum of 12 hours. Magnesium may be tapered when the following conditions are met.

Nil persistent headache, visual change for 6 hours

Presence of spontaneous diuresis . 100ml/hr for 2 consecutive hours

Systolic BP < 150 and diastolic BP < 100

Absent clonus (less than 3 beats)

Patient may be transferred to delivery suite when condition and all organ dysfunction resolving whilst still on magnesium and/or hydralazine infusions. It is essential however this is only done following discussion and agreement between Intensivist and Obstetrician. The delivery suite NUM must also agree.

Note that syntocin infusions make renal management more difficult and should be ceased as soon as possible.

### **references**

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