

Obstetrics Guideline

Management of Acute Hypertensive Crisis in Pregnancy

The purpose of acute parenteral treatment of severe hypertension is to prevent a stroke. Anti-hypertensive therapy is indicated when maternal blood pressure is ≥ 110 mm Hg diastolic or ≥ 180 mm Hg systolic.

- The goal of therapy is to decrease blood pressure by 20-30% quickly and then decrease blood pressure slowly to a target level of: systolic blood pressure [SBP] 140-160s and diastolic blood pressure [DBP] 80-90s.
- Reducing blood pressure too quickly to a lower level or below target level can significantly reduce intrauterine perfusion and negatively impact the fetus.

Procedure:

1. See Appendix that follows for specific medication administration guidelines
 - Verify physician orders
2. Electronic maternal monitoring of blood pressure and pulse/EKG as ordered
 - Assess blood pressure, apical heart rate and respiratory rate prior to medication administration and then as indicated/ordered
3. Intravenous access initiated; verify existing IV is functioning properly
4. Electronic fetal monitoring as ordered
5. Patient care monitoring on Antepartum/OB Step Down or Labor & Delivery

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APPENDIX

Medication Administration: IV LABETALOL

Action/Indication: Beta-adrenergic antagonist with alpha blocking activity. Causes decreased systemic vascular resistance (vasodilation), reduces afterload, reduces cardiac contractility and heart rate but maintains cardiac output unlike pure beta blockers.

- **Limited to women with a DBP \geq 110 on 2 occasions or a SBP $>$ 180**
- Goal of therapy is to **reduce** DBP to $<$ 100 [80-90's]; and SBP to 140-160's
- Metabolized by the liver

Contraindications: Asthma [exacerbation of bronchospasm]

*For patients with positive cocaine use, treat first with Hydralazine

Route, Dose, Administration	Maternal Side Effects	Fetal/Neonatal Effects	Nursing Interventions/Implications
<p>Begin with:</p> <p>10 mg IV push slowly [5 mg / mL]</p> <p>Maximum response will occur within 5 minutes.</p> <p>If first dose does not decrease pressure, double each dose thereafter to a maximum of 80 mg per single administration.</p> <p>May repeat every 10 minutes and may use doses of 10-80 mg depending on response.</p> <p>Maximum Cumulative Dose: 300 mg</p> <p>Duration of action: 3-6 hours</p>	<p>1. Most adverse effects are mild, transient and occur early in treatment. Causes cardiac failure less frequently than pure beta blockers. Maternal side effects include:</p> <ul style="list-style-type: none"> • exacerbation of bronchospasm (contraindicated with asthma) • bradycardia • hypotension • tremulousness • may be associated with hypoglycemia in diabetics <p>2. Adverse effects may be intensified with administration of:</p> <ul style="list-style-type: none"> • cimetadine—increased Labetalol bioavailability. • Halothane anesthesia — intensification of Labetalol hypotensive effect. • tricyclic antidepressants— Increased incidence of tremulousness. <p>3. Toxicity:</p> <ul style="list-style-type: none"> • postural hypotension • nausea • syncope • paresthesia (scalp tingling most common) • skin rash • liver dysfunction <p>4. Antidote:</p> <ul style="list-style-type: none"> • hypotension: judicious use of fluids and ephedrine. Both should be used with caution especially in the presence of preeclampsia. • symptomatic bradycardia: treat with <u>atropine</u>. If atropine given in sufficient doses, will decrease/obliterate FHR var. 	<p>1. Fetal/neonatal side effects largely unknown but several clinical studies have been undertaken without reports of adverse neonatal effects.</p> <p>2. Studies have not indicated a decrease in uteroplacental flow on maintenance doses. Reduced uteroplacental perfusion can occur transiently as sequelae to maternal hypotension.</p> <p>3. There have been rare reports of neonatal bradycardia and hypotension. Observation of neonate suggested.</p>	<p>1. When diastolic blood pressure reaches $>$ 110 mmHg, blood flow to the fetus is compromised and there is increased risk of maternal stroke. Therefore, reducing diastolic blood pressure to \geq 85 and $<$ 110 is beneficial to both mother and fetus.</p> <p>2. Labetalol can be given in low dose to affect vasodilation, reducing afterload, cardiac contractility and heart rate with maintenance of cardiac output (unlike pure beta blockers).</p> <p>3. Document:</p> <ul style="list-style-type: none"> • labetalol administration • response to Labetalol • BP, apical pulse, respirations 5 minutes after each dose then q 15 minutes for 1 hour q hour for 3 hours post last dose or more frequently as ordered

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Medication Administration: IV HYDRALAZINE (APRESOLINE)

Action/Indication: Reduces BP by direct relaxation of vascular smooth muscle. The resulting vasodilation reduces peripheral vascular resistance and increases renal and cerebral blood flow. It increases uterine perfusion and cardiac output.

Contraindications: Use cautiously in patients with underlying cardiac disease.

Route, Dose, Administration	Maternal Side Effects	Fetal/Neonatal Effects	Nursing Interventions/Implications
<p>Route: IV push</p> <p>Dose: Begin with no more than 5 mg slow IV push over 1-2 minutes.</p> <p>Peak effect in 10 - 20 minutes.</p> <p>Administration:</p> <ul style="list-style-type: none"> Administer at port closest to IV site, since drug may adhere to tubing and amount administered may not be exact. If no response in 15-20 minutes or if desired diastolic BP not achieved, repeat as ordered, 5-10 mg slow IV push. <p>Maximum cumulative dose in 12 hours of 40 mg IVP</p> <p>Half life: 3-5 hours</p>	<p>Maternal Side Effects:</p> <ul style="list-style-type: none"> headache epigastric pain tachycardia with palpitations diarrhea sweating nausea and vomiting dizziness rash sodium retention orthostatic hypotension <p>Toxicity:</p> <ul style="list-style-type: none"> hypotension angina <p>Antidote:</p> <ul style="list-style-type: none"> There is no direct antidote. propranolol (Inderal) for resultant tachycardia 	<p>Fetal Effects:</p> <p>Tachycardia; increased FHR baseline</p> <p>Neonatal Effects:</p> <p>Tachycardia if administered within 20-30 minutes of delivery</p>	<ol style="list-style-type: none"> When diastolic pressure reaches > 110 mm Hg, blood flow to the fetus is compromised and there is increased risk of maternal stroke. Reducing diastolic BP to $\geq 85 < 110$ is beneficial to both mother and fetus. Hydralazine is a rapid-acting antihypertensive that can be given in low dose increments to relax smooth muscle in the arterioles thus causing a peripheral vasodilation without reducing uteroplacental blood flow. Document: <ul style="list-style-type: none"> hydralazine administration Response to hydralazine BP, apical pulse, respirations <ul style="list-style-type: none"> q 5 minutes after each dose x 20 minutes then q 1 hour or as ordered

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Medication Administration: NIFEDIPINE [PROCARDIA]

Action/Indication: Calcium channel blocker. Decreases peripheral vascular resistance and increases cardiac output. Also causes uterine relaxation. Used in treatment of moderate to severe hypertension.

Contraindications: Known hypersensitivity.
Cautious use: concomitant use with other hypotensive drugs; relatively contraindicated with IV magnesium sulfate; congestive heart failure.

Route, Dose, Administration	Maternal Side Effects	Fetal/Neonatal Effects	Nursing Interventions/Implications
<p>Route: The sublingual route is not recommended due to rapid onset of action*</p> <p>10-20 mg p.o. TID (doses above 180 mg per day or 30 mg at one time are not recommended).</p> <p>Onset of Action: Following p.o. administration; within 10-20 minutes with peak levels in 30 minutes.</p> <p>Duration of action: 4-8 hours</p> <p>*Note: The patient should not bite the capsule.</p> <p>If patient bites the capsule and swallows, the same effect (rapid onset) is obtained as using the sublingual route of administration.</p>	<p><u>Common:</u></p> <ul style="list-style-type: none"> • hypotension • facial flushing (usually within 15 minutes of administration). • maternal heart rate increased 10-25 BPM. <p><u>Occasional:</u></p> <ul style="list-style-type: none"> • light headedness • dizziness • edema • Heart burn • general weakness • pruritis • flushing and burning of skin • tinnitus • nausea <p><u>Infrequent:</u></p> <ul style="list-style-type: none"> • precipitation of angina • myocardial infarction • congestive heart failure • leg cramps • transient increase in LFT's 	<p>Unknown</p>	<ol style="list-style-type: none"> 1. Notify physician if systolic BP < 90 or diastolic < 50. P >120 2. Inform patient of common and occasional side effects 3. May potentiate neuromuscular blocking action of magnesium. 4. Hypotensive episodes have been reported when used concomitantly with IV magnesium sulfate. 5. Document: <ul style="list-style-type: none"> -nifedipine administration -response to Nifedipine -BP, apical pulse, respirations <ul style="list-style-type: none"> • BP, pulse at 10 minutes with q dose • repeat q 10 minutes X2 then hourly

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References

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