

## Types of Inherited Metabolic Disease With Neurologic Presentation in Infancy:

### Neurological Distress

(Seizures, Lethargy, Coma)

<u>Acidosis</u>	<u>Ketosis</u>	<u>Lactic Acid</u>	<u>Ammonia</u>	<u>Most Likely Diagnoses</u>
○	+	○	○	Maple Syrup Urine Disease
+	+	○	+	Organic Acidemia
+	+	+	○	Lactic acidosis
○	○	○	+	Urea Cycle Defects
○	○	○	○	Non-ketotic hyperglycinemia
				Peroxisomal disorders
				Mitochondrial disorders

### With Hepatomegaly ± Liver Dysfunction

<u>Acidosis</u>	<u>Ketosis</u>	<u>Lactic Acid</u>	<u>Ammonia</u>	<u>Most Likely Diagnoses</u>
+	+	+	○	Glycogen Storage Disease
				Gluconeogenesis
				Galactosemia
				Tyrosinemia-I

## Acute Presentation in Infancy:

(lethargy, coma, acidosis, hepatomegaly)

### Rule out:

- Hypoglycemia
- Hypoxic event
- Sepsis
- CNS bleed
- cong. heart
- Toxins

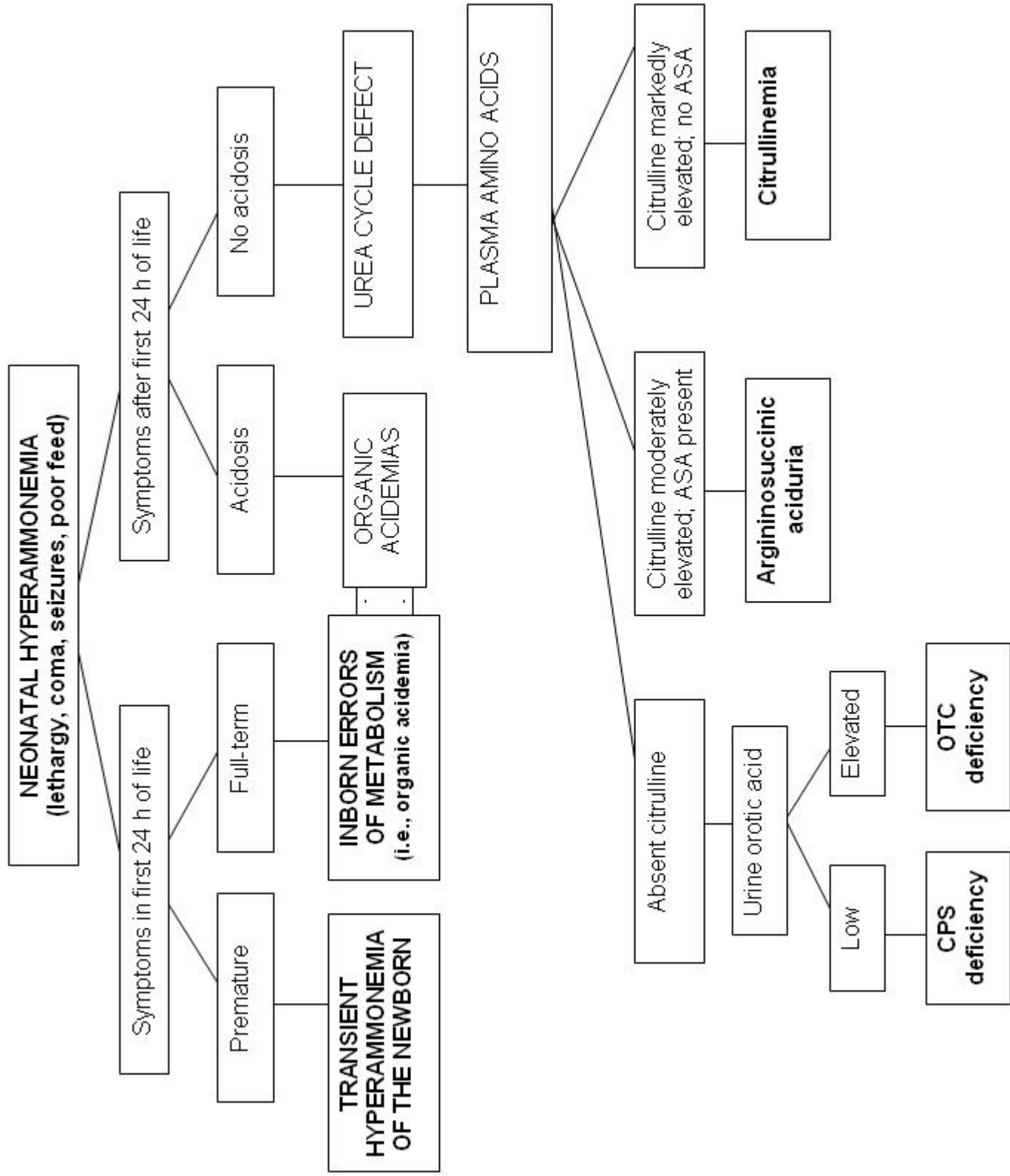
### Physical Exam:

- normal phenotype
- enlarged liver
- dysmorphic

### Laboratory Test:

CBC  
 Urine:  
 'lytes  
 glucose  
 lactate  
 NH3  
 pH  
 spec. grav  
 ketones  
 reducing substance

Major Disorder	Abnormal Clinical Test	Disease Example	Confirming Genetic Test
<b>Amino Acid disorder</b>		MSUD NKH Glycinemia Tyrosinemia-I	Plasma AA's organic acids tissue enzymes
<b>Urea cycle disorder</b>	NH3 ↑	OTC argininosuccinate citrullinemia	Plasma/urine AA's orotic acid tissue enzymes
<b>Organic acid disorder</b>	acidosis NH3 ↑ (?) urine ketones	methylmalonic propionate / isovaleric glutaric - II	organic acids tissue enzymes
<b>HCO3 loss</b>	'lytes	Renal loss G-I loss	plasma/urine pH & HCO3
<b>Lactic acidosis/ Mitochondria</b>	lactate ↑	PDH def mitochondrial MERRF, MELAS	pyruvate/lactate tissue enzymes muscle bx, DNA
<b>Glycogen storage</b>	acidosis glucose ↓ lactate ↑	GSD-I & III	glucose/lactate chol/trig/uric a. Liver bx, DNA
<b>Fatty acid oxidation</b>	glucose ↓ urine ketones ↓	MCAD LCHAD	organic acids DNA for MCAD, LCHAD tissue enzymes
<b>Galactosemia</b>	+ urine reducing substance	galactosemia	RBC gal-I-PUT DNA genotype
<b>Peroxisomal disease</b>		Zellweger S. psuedo-Zellweger S.	X-rays VLCFA/plasmalogens liver bx tissue enzymes
<b>Lysosomal disease</b>		GM-1 gangliosidosis MPS disorders	X-rays tissue enzymes MPS excretion oligosaccharides EM of skin



(Neonatal Hyperammonemia – Dr. Scott – Rev. 04)

