Medical School for International Health
Ben-Gurion University of the Negev

USMLE PREP LECTURE SERIES
Lecture 3.1

ELITE MEDICAL PREP

Elite Medical Prep Guide for Ben Gurion Students

Last Updated: November 29, 2018. Delivered: November 29, 2018

ELITE MEDICAL PREP

Objectives

- Background
- Resources
- Challenge Questions
  - Peds Hepatobiliary
  - Peds Neuro
- Next Lecture

Live Polling

We will be using Poll Everywhere:

www.**pollev**.com/marcelbrusra627

ELITE MEDICAL PREP

How are you feeling today?

Our Team

Our team has published more than 95 academic and research papers

Our tutors boast more than 11 different ~~medical~~ specialties

Our tutors are colleagues. Not freelancers.

We are a group of healthcare professionals who have attained exceedingly high scores on our USMLE exams, and have dedicated our time to helping medical students achieve their own testing and professional goals. We want our students to see the USMLE as an opportunity to shine rather than as a barrier to residency acceptance.

Our Founders

Kenneth Rubin, MD
Co-founder and CEO

Mt Sinai USMLE Course Director

Mt. Sinai | Columbia University

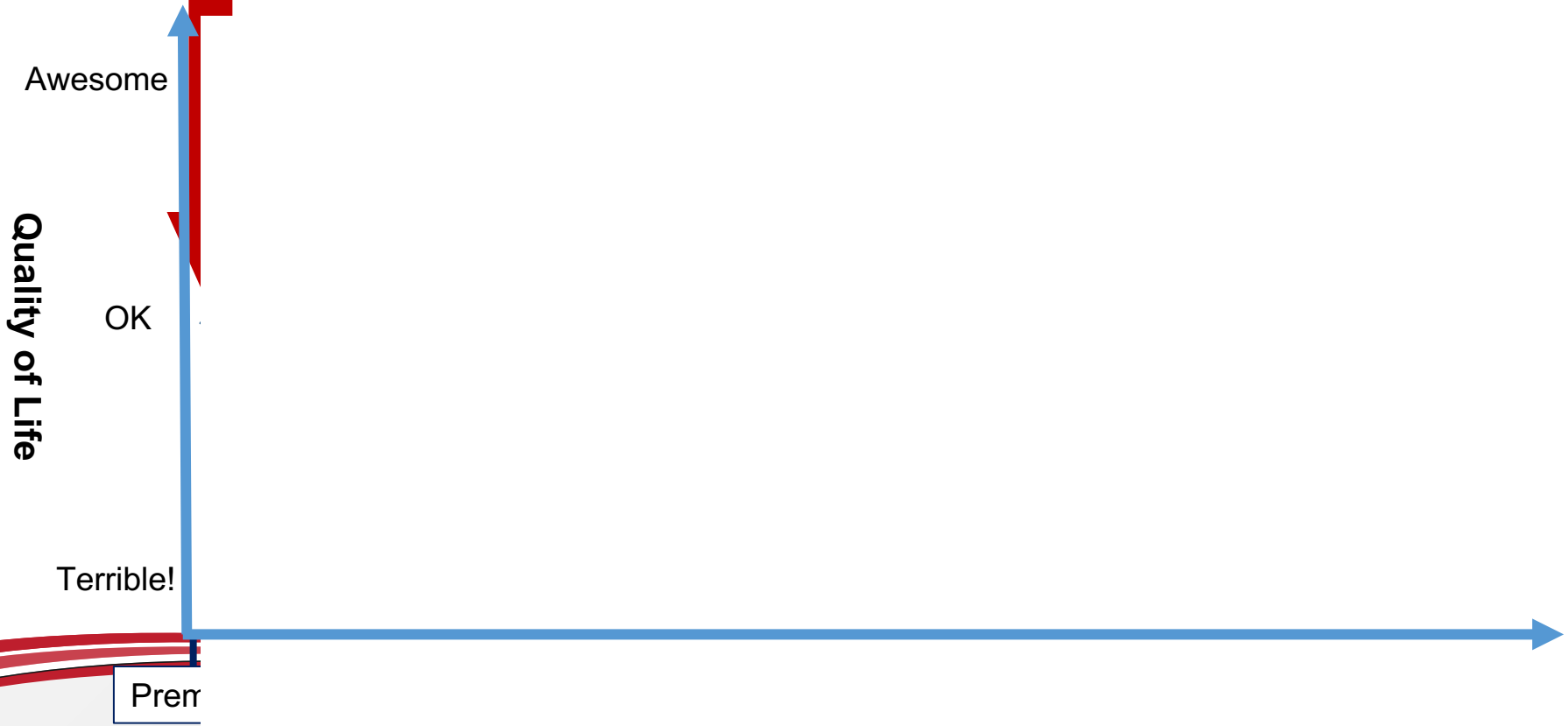
Marcel Brus-Ramer, MD/PhD
Co-founder and President

Board Certified Radiologist
Columbia P&S Online Lecturer

Columbia University | UCSF | Rutgers | Paris Diderot

With nearly 17 years and 10,000+ hours of combined USMLE teaching and tutoring experience, the founders of Elite Medical Prep (“Elite”), Kenneth Rubin, MD and Marcel Brus-Ramer MD/PhD, have developed a unique system of 1-on-1, small group and lecture-based instruction to maximize USMLE preparedness for students of all levels and backgrounds.

Your Medical Education vs Your Quality of Life



USMLE Step 2 CK Basics

- 318 multiple-choice test items
- 8 x ~40-question/60-minute blocks in a 9-hr testing session
- Scoring – 3-digit; mean 242, SD 17, Pass > 209.
  - Compare w/ Step 1: mean 228, SD 21, Pass > 192
- 45-60 min of breaks—to use as you wish between blocks

  - Focused on diagnosis and management

  - Tests ability to: “apply medical knowledge… of clinical science *essential for… patient care under supervision*, with an emphasis on health promotion and disease prevention”

  - Questions require linking together various pieces of knowledge

Why is Step 2 CK Important (or less important)

Residency in the USA

- Step 1 and Step 2 CK are **important**.
  - Step 1 >> Step 2 CK
- Step 2 CK can help compensate for a weaker Step 1 score
- However…
  - Step 2 CK has increased importance now that avg. Step 1 scores continue to increase
- FMGs:
  - Good to show a solid Step 2 CK score (>220)
  - Better to show a strong Step 2 CK score (>240)

Fellowship in the USA

- Step 1 and Step 2 CK are **necessary.**
  - Step 1 = Step 2 CK
- However…
  - Failing the exam multiple times can cause problems with licensing
  - Medical licensing is state by state; rules vary
- Do these tests during medical school
  - The material only gets harder to remember/relearn

License in Israel

- Can replace Israeli exams
  - **Only** if Israeli exams have not already been attempted
- Step 1 & Step 2 CK for Internship
- Step 1, Step 2 CK & CS, Step 3 for License

Roadmap to Step 2 Success

Step 2 Prep is 65% during 3rd year, 35% before the exam... So start on your first rotation!

Do the Qbank questions related to your clinical rotation throughout 3rd year –you'll have done most of Q's by study time

Do the NBME practice exams during 3rd year– to prepare for shelf exams and get NBME style question practice for Step 2

After 3rd year, review the practice NBME shelf exams to identify your strengths and weaknesses to prioritize your schedule

Set your schedule. Prioritize your weaknesses to study first. Divide up Qbank to get through it a second time (1st time was during 3rd yr)

Take a Baseline practice exam. Decide on a test date based on where you are now and how much work you have to do to get the score you want

Limit other resources outside of Qbank/NBME questions. Have an available written/video resource.

Make/Edit/Do flashcards for topics you have trouble with; review nightly

Take more practice exams to gauge readiness and reach out for support if you need it

The more questions you do, the better!

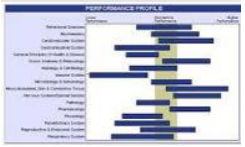
ELITE MEDICAL PREP

Limit Your Resources

Primary Resources

UWorld USMLE

NBME
National Board of Medical Examiners
National Board of Medical Examiners® (NBME®)
SELF-ASSESSMENT SERVICES

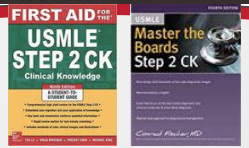


2ndary

Anki

Video Series

AMBOSS



- Qbank should comprise **>90%** of your study efforts
- Get through Qbank **at least 2x** before taking the exam
  - 1st Pass: mixture of TUTOR mode & TIMED mode
  - Reset the Qbank
  - 2nd Pass: TIMED MODE

We recommend taking notes or making flashcards on missed questions

Test questions and question prompts are frequently recycled with minor adjustments

- NBMEs and UWorld Self Assessments: 2 PURPOSES
  1. Objective assessment of where you are, and if you are ready to sit for the exam
  2. Exposes you to question prompts from the actual test writers
- A reference video series/resource/book is helpful to have for review & to understand the scope and depth of knowledge required.

3rd year students should have a Qbank, possibly 2, and a some kind of reference source

ELITE MEDICAL PREP

Platform	✓ Key Positives
OSMOSIS	✓ Best illustrations ✓ Comprehensive without being overly detailed ✓ Study schedule tool is unmatched ✓ User friendly; Integrated with key resources ✓ Mobile friendly
AMBOSS	✓ Comprehensive, but overly detailed ✓ Guidance Mode in Qbank ✓ Embedded key resources
lecturio	✓ User friendly ✓ Great illustrations ✓ Integration with key resources
Pathoma	✓ Presents path/pathophys in manageable chunks ✓ Passive learning with variable detail
Boards and Beyond™	✓ Well organized and integrated with key resources ✓ Good second source for tough topics ✓ Good integration of pharmacology and physiology
OnlineMedEd	✓ User friendly ✓ comprehensive for shelf exams ✓ Excellent videos
KAPLAN	✓ Large question bank and practice exams ✓ Mobile friendly
usmle	✓ Good review of basic USMLE tenets with references to First Aid

Exams we recommend for these platforms...

Platform	Step 1	Step 2	Shelf Exams	Coursework
Osmosis	✓	✗	✗	✓
AMBOSS	✓	✓	✗	✓
lecturio	✓	✗	✗	✓
Pathoma	✓	✗	✗	✓
Boards and Beyond™	✗	✗	✗	✓
OnlineMedEd	✗	✗	✓	✓
KAPLAN	✓	✗	✗	✓
usmle	✗	✗	✗	✗

USMLE Practice Question Breakdown

3 A 26 year old woman is brought to the emergency department by her roommate because of vomiting for 4 hours. She also has a 2 day history of fatigue and dizziness on standing. She has had severe heartburn for 3 months; treatment with over-the-counter antacids has provided some relief. The vital signs of the patient are T 35.6C (96F), pulse 110/min, and blood pressure 80/55 mm Hg. Physical examination shows marked pallor. Laboratory studies show a hemoglobin concentration of 6 g/dL and hematocrit of 18%. A chest x-ray is obtained (shown) and a pulmonary catheter is inserted and laboratory values are measured.

4 

1 The patient is most likely experiencing which of the following types of shock?

2
A) Anaphylactic.
B) Cardiogenic.
C) Hypovolemic.
D) Neurogenic.
E) Septic.

EMP's SUGGESTED ORDER. There is no one right way to do this.

1. **The question stem – tells you what the question is asking**
2. **The answer choices – Given you some context as to what the question is about**
3. **The prompt – Summarize key information as it's given in your own words; ensure that the answer matches ALL of the information given, not just some**
4. **Labs and images. EVAL the labs. IGNORE the images.**

EDICAL PREP

Challenge Questions
and breakdowns

ELITE MEDICAL PREP

USMLE Practice Question Breakdown

3 A 26 year old woman is brought to the emergency department by her roommate because of vomiting for 4 hours. She also has a 2 day history of fatigue and dizziness on standing. She has had severe heartburn for 3 months; treatment with over-the-counter antacids has provided some relief. The vital signs of the patient are T 35.6C (96F), pulse 110/min, and blood pressure 80/55 mm Hg. Physical examination shows marked pallor. Laboratory studies show a hemoglobin concentration of 6 g/dL and hematocrit of 18%. A chest x-ray is obtained (shown) and a pulmonary catheter is inserted and laboratory values are measured.

4 

1 The patient is most likely experiencing which of the following types of shock?

2
A) Anaphylactic.
B) Cardiogenic.
C) Hypovolemic.
D) Neurogenic.
E) Septic.

EMP's SUGGESTED ORDER. There is no one right way to do this.

1. **The question stem – tells you what the question is asking**
2. **The answer choices – Given you some context as to what the question is about**
3. **The prompt – Summarize key information as it's given in your own words; ensure that the answer matches ALL of the information given, not just some**
4. **Labs and images. EVAL the labs. IGNORE the images.**

EDICAL PREP

PEDS #1

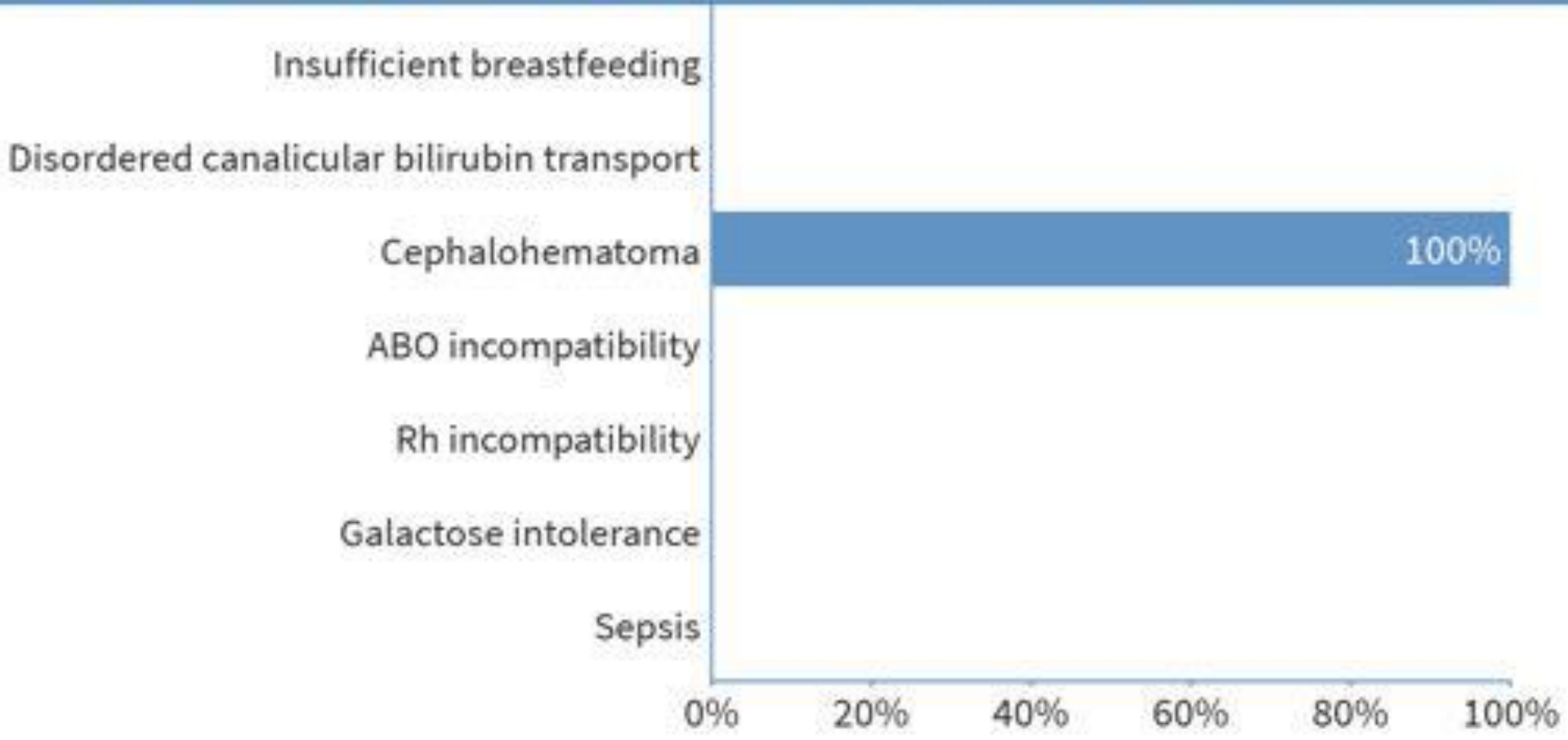
A 4-day-old female newborn is brought to the physician by her mother because her skin appears yellow. She has been breast-feeding and has had normal stool and urine output. She was born at term, and delivery required vacuum extraction. She had a large scalp swelling at birth. Examination now shows a swelling in the left posterior occiput that does not cross suture lines, scleral icterus, and jaundice of the lower extremities. The blood group of the newborn is O, Rh-positive. The blood group of the mother is A,Rh-positive. A direct antiglobulin (Coombs) test is negative. Serum total bilirubin concentration is 16 mg/dL (0.9 mg/dL direct). Which of the following is a risk factor for hyperbilirubinemia in this infant?

1

2

A. Insufficient breastfeeding
B. Disordered canalicular bilirubin transport
C. Cephalohematoma
D. ABO incompatibility
E. Rh incompatibility
F. Galactose intolerance
G. Sepsis

PEDS #1: Which of the following is a risk factor for hyperbilirubinemia in this infant?



Summary

A 4-day-old female newborn is brought to the physician by her mother because her skin appears yellow. She has been breast-feeding and has had normal stool and urine output. She was born at term, and delivery required vacuum extraction. She had a large scalp swelling at birth. Examination now shows a swelling in the left posterior occiput that does not cross suture lines, scleral icterus, and jaundice of the lower extremities. The blood group of the newborn is O, Rh-positive. The blood group of the mother is A, Rh-positive. A direct antiglobulin (Coombs) test is negative. Serum total bilirubin concentration is 16 mg/dL (0.9 mg/dL direct). Which of the following is a risk factor for hyperbilirubinemia in this infant?

A. Insufficient breastfeeding
B. Disordered canalicular bilirubin transport
C. Cephalohematoma
D. ABO incompatibility
E. Rh incompatibility
F. Galactose intolerance
G. Sepsis

4-day-old newborn with jaundice, unconjugated hyperbilirubinemia, feeding well (normal stools / UOP), blood type O+ born to A+ mother, negative DAT, has scalp swelling

ELITE MEDICAL PREP

What would we expect with each of the answers?

A. Insufficient breastfeeding
B. Disordered canalicular bilirubin transport
C. Cephalohematoma
D. ABO incompatibility
E. Rh incompatibility
F. Galactose intolerance
G. Sepsis

ELITE MEDICAL PREP

What would we expect with each of the answers?

A. **Insufficient breastfeeding** – hx difficulty feeding, decreased stools/UOP, typically within first week of life, improves w/ better feeding patterns, **unconjugated** HB
B. **Disordered canalicular bilirubin transport** – Dubin-Johnson (darkly pigmented liver) or Rotor (normally pigmented liver) syndrome, **conjugated** hyperbilirubinemia
C. **Cephalohematoma** – sub-periosteal hemorrhage that **does not cross suture lines**, **unconjugated** HB 2/2 elevated Hgb burden from bleed
D. **ABO incompatibility** – maternal blood Type O (much less common with blood types A, B, and AB) with baby blood type A, B, or AB (mom makes anti-A / anti-B Abs), **positive Coombs**, **unconjugated** HB, generally mild hemolysis as most anti-A/B Abs are IgM (cannot cross placenta)
E. **Rh incompatibility** – maternal blood type Rh (-), baby blood type Rh (+), second pregnancy (need prior exposure to Rh antigen to develop anti-Rh antibodies), severe fetal anemia / **hydrops fetalis** (anti-Rh antibody is IgG and therefore can cross placenta), **severe unconjugated** HB, positive Coombs, poor prenatal care / lack of RhoGAM in prior pregnancy
F. **Galactose intolerance** – vomiting, failure to thrive, *E Coli* sepsis, reducing substances in urine, cataracts, improvement of symptoms with elimination of lactose from diet, **conjugated** HB
G. **Sepsis** – neonatal **fever** or hypothermia, tachycardia, hypotonia, signs of focal infection, history of maternal fever or PROM/PPROM, mother GBS+ or unknown, **conjugated** HB (sepsis-induced cholestasis), hypoglycemia, metabolic acidosis, stupor/lethargy

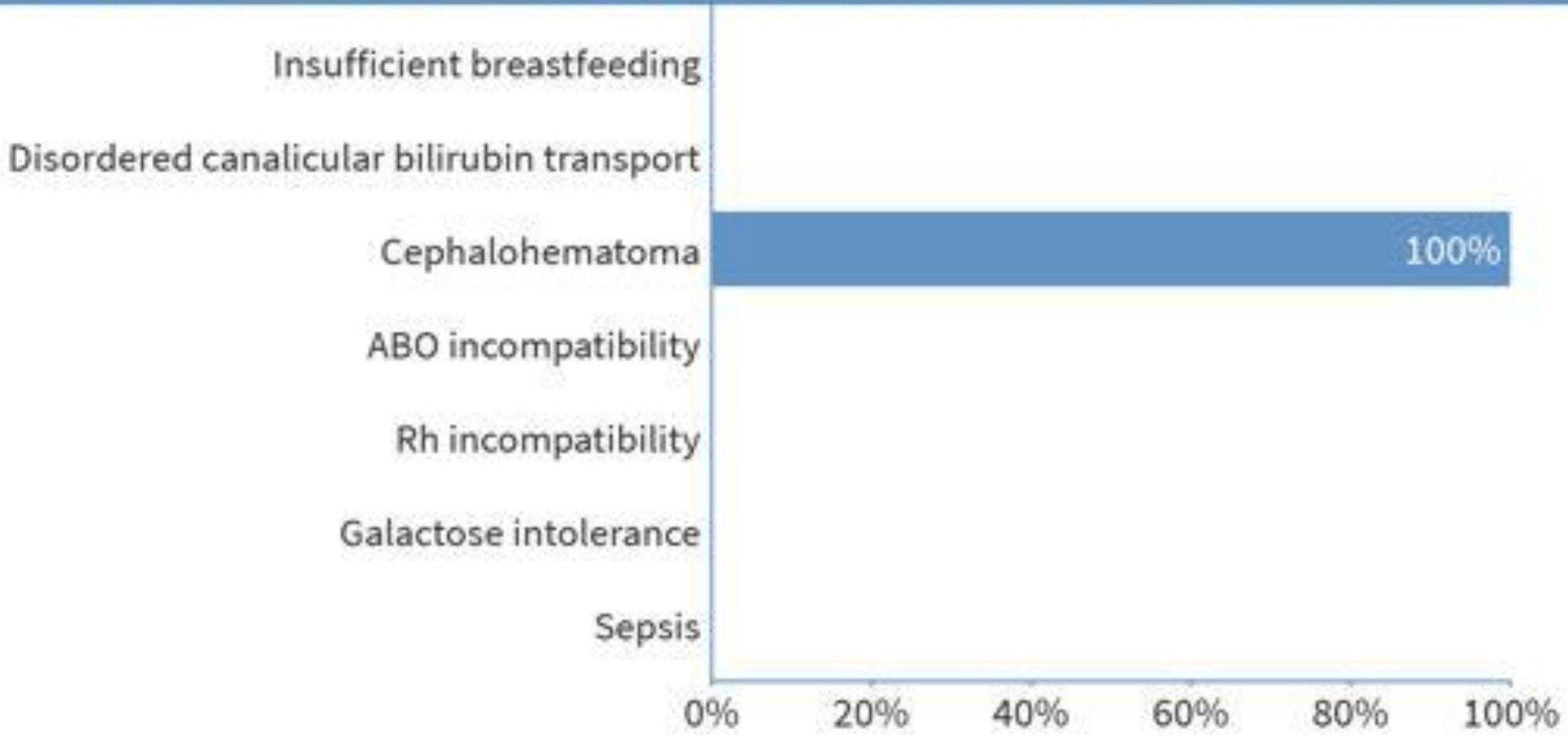
Answer?

A 4-day-old female newborn is brought to the physician by her mother because her skin appears yellow. She has been breast-feeding and has had normal stool and urine output. She was born at term, and delivery required vacuum extraction. She had a large scalp swelling at birth. Examination now shows a swelling in the left posterior occiput that does not cross suture lines, scleral icterus, and jaundice of the lower extremities. The blood group of the newborn is O, Rh-positive. The blood group of the mother is A, Rh-positive. A direct antiglobulin (Coombs) test is negative. Serum total bilirubin concentration is 16 mg/dL (0.9 mg/dL direct). Which of the following is a risk factor for hyperbilirubinemia in this infant?

A. Insufficient breastfeeding
B. Disordered canalicular bilirubin transport
C. Cephalohematoma
D. ABO incompatibility
E. Rh incompatibility
F. Galactose intolerance
G. Sepsis

ELITE MEDICAL PREP

PEDS #1: Which of the following is a risk factor for hyperbilirubinemia in this infant?



Answer?

A 4-day-old female newborn is brought to the physician by her mother because her skin appears yellow. She has been breast-feeding and has had normal stool and urine output. She was born at term, and delivery required vacuum extraction. She had a large scalp swelling at birth. Examination now shows a swelling in the left posterior occiput that does not cross suture lines, scleral icterus, and jaundice of the lower extremities. The blood group of the newborn is O, Rh-positive. The blood group of the mother is A, Rh-positive. A direct antiglobulin (Coombs) test is negative. Serum total bilirubin concentration is 16 mg/dL (0.9 mg/dL direct). Which of the following is a risk factor for hyperbilirubinemia in this infant?

~~A. Insufficient breastfeeding~~
~~B. Disordered canalicular bilirubin transport~~
C. Cephalohematoma
~~D. ABO incompatibility~~
~~E. Rh incompatibility~~
~~F. Galactose intolerance~~
~~G. Sepsis~~

An AST/ALT ratio > 2 suggests alcoholic hepatitis.

Some 80% of patients with HCV infection will develop chronic hepatitis.

DIAGNOSIS

- Dramatically ↑ **ALT and AST** and ↑ bilirubin/alkaline phosphatase are present in the acute form.
- In chronic hepatitis, ALT and AST are ↑ for > 6 months with a concurrent ↑ in alkaline phosphatase/bilirubin and hypoalbuminemia. In severe cases, PT will be prolonged, as all clotting factors except factor VIII are produced by the liver.
- The diagnosis of viral hepatitis is made by **hepatitis serology** (see Table 2.6-7 and Figure 2.6-12 for a description
and by liver biopsy in chronic or severe c
- ANA, anti–smooth muscle antibody, and
to autoimmune hepatitis. Iron saturatio
plasmin (Wilson's disease) can identify ot

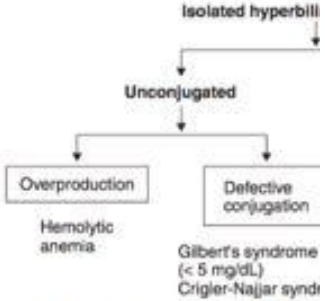
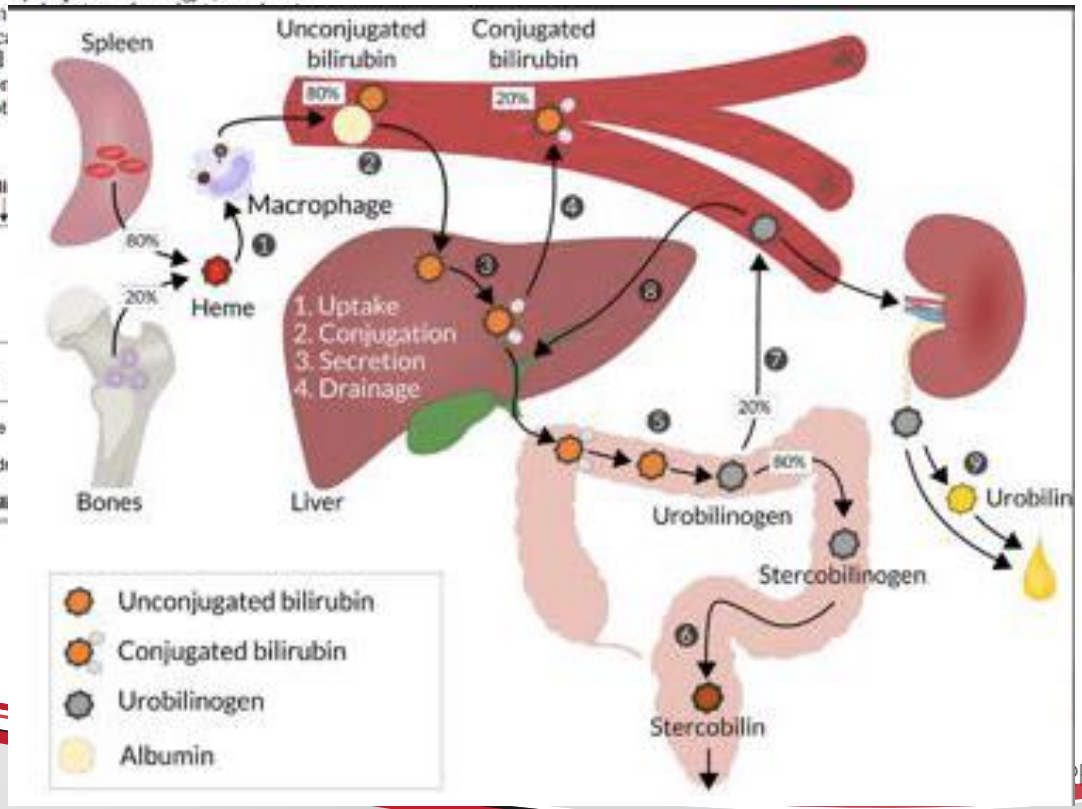


FIGURE 2.6-11. **Approach to isolated hyperbili**

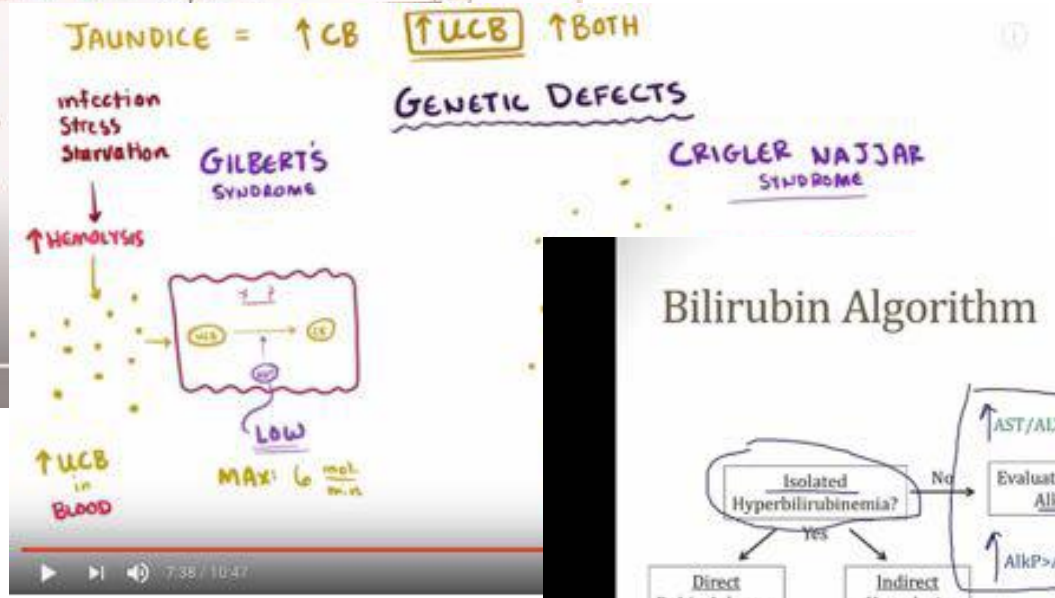


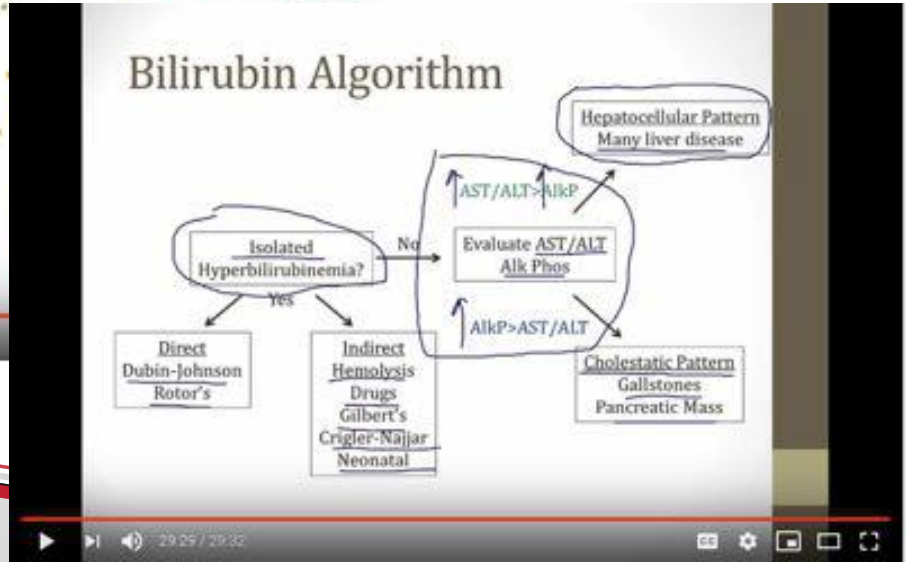
OnlineMedEd Topics Q Bank Flashcards Coaching App Store About Us

Pediatrics

Neonatal Jaundice

Prime Acquire Challenge Enforce More





Review: Genetic Disorders of Bilirubin metabolism

Most commonly asked on USMLE

Condition	Defect	Bilirubin	Clinical Clues
Crigler-Najjar Syndrome – Type I	Severe defect in UDP-glucuronyltransferase	Severe increase in **unconjugated** bilirubin	Profound neurologic dysfunction (kernicterus), early death
Crigler-Najjar Syndrome – Type II	Moderate defect in UDP-glucuronyltransferase	Moderate increase in **unconjugated** bilirubin	Severe neonatal jaundice requiring phototherapy/exchange transfusion, may survive past infancy
Gilbert Syndrome	Mild defect in UDP-glucuronyltransferase	Mild increase in **unconjugated** bilirubin	mild jaundice, often appears with stress / fasting / infection
Dubin-Johnson	Impaired excretion of conjugated bilirubin (MRP2 / ABCC2 mutation)	Mild increase in **conjugated** bilirubin	Mild jaundice, **darkly pigmented liver**
Rotor Syndrome	Impaired excretion of conjugated bilirubin (OATP1B1/3 mutation)	Mild increase in **conjugated** bilirubin	Like DJS, just with a **normally pigmentd liver**

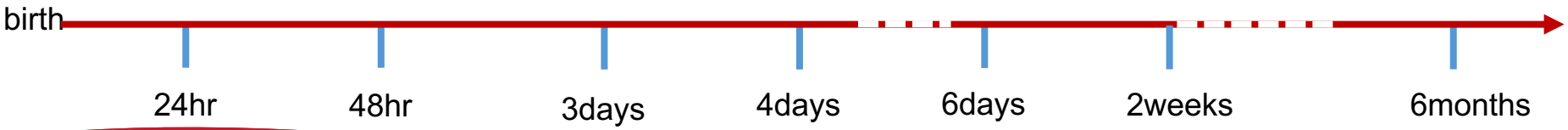
Review: breastfeeding failure vs breast milk jaundice

Condition	Pathophysiology	Presentation	Treatment
Breastfeeding failure jaundice	Inadequate feeding → decreased gut motility → increased enterohepatic circulation of bilirubin / decreased bilirubin excretion → unconjugated HB	Neonate with signs of poor feeding (improper latch, poor suck, decreased stooling / urine output, dehydration, excessive weight loss) **within 1st week of life**	Establish proper feeding
Breast milk jaundice	High beta-glucuronidase in breast milk → deconjugation of intestinal bilirubin → increased enterohepatic circulation → unconjugated HB	Neonate with **adequate feeding and weight gain**, **normal exam**, and unconjugated hyperbilirubinemia, usually begins day 3-5 and **peaks week 2**	No specific treatment – phototherapy, exchange transfusion as per nomogram

ELITE MEDICAL PREP

Pediatric Jaundice—Time & Bili levels

- < 24 hr of life: jaundice is always pathologic
  - think: galactosemia, hemolytic dz of newborn
- Physiologic jaundice
  - starts around 72hr after birth
- Total Bilirubin > 20 mg/dL is (almost) always abnormal
  - Peak physiologic level is > 15
  - Direct should be 10% or less of Total
- Look for relevant physical exam findings/history
  - Cephalohematoma or other source of extravascular blood--> Hbg breakdown products
  - Liver size: can be palpated up to 2cm below ribs
  - Breast fed?
  - Stools: yellow or white? Normal # (i.e. is the baby well hydrated)?



ELITE MEDICAL PREP

A 2-day-old male newborn is brought to the physician because of yellowing of the skin and sclerae for 16 hours. He had previously been well. He was born at 38 weeks' gestation via uncomplicated vaginal delivery and weighed 3.1 kg (6 lb 13 oz). The mother has no medical insurance and did not receive prenatal care. The newborn's 4-year-old brother has sickle cell disease. Examination shows jaundice. The abdomen is mildly distended. The liver is palpated 1 cm below the right costal margin and the spleen tip is palpated just below the left costal margin. Laboratory studies show:

Hemoglobin	11 g/dL
Reticulocytes	4%
Leukocytes	9,100/mm^3
Platelets	244,000/mm^3
Maternal blood group	O, Rh-negative
Anti-Rh antibody titer	positive
Fetal blood group	B, Rh-negative
Serum	
Bilirubin, total	11.3 mg/dL
Direct	0.3 mg/dL

Which of the following is the most likely cause of this patient's condition?

(A) Viral infection
(B) RBC enzyme deficiency
(C) RBC sickling
(D) Anti-D antibodies
(E) Biliary duct malformation
(F) Anti-B antibodies

AMBOSS
ELITE MEDICAL PREP

A 2-day-old male newborn is brought to the physician because of yellowing of the skin and sclerae for 16 hours. He had previously been well. He was born at 38 weeks' gestation via uncomplicated vaginal delivery and weighed 3.1 kg (6 lb 13 oz). The mother has no medical insurance and did not receive prenatal care. The newborn's 4-year-old brother has sickle cell disease. Examination shows jaundice. The abdomen is mildly distended. The liver is palpated 1 cm below the right costal margin and the spleen tip is palpated just below the left costal margin. Laboratory studies show:

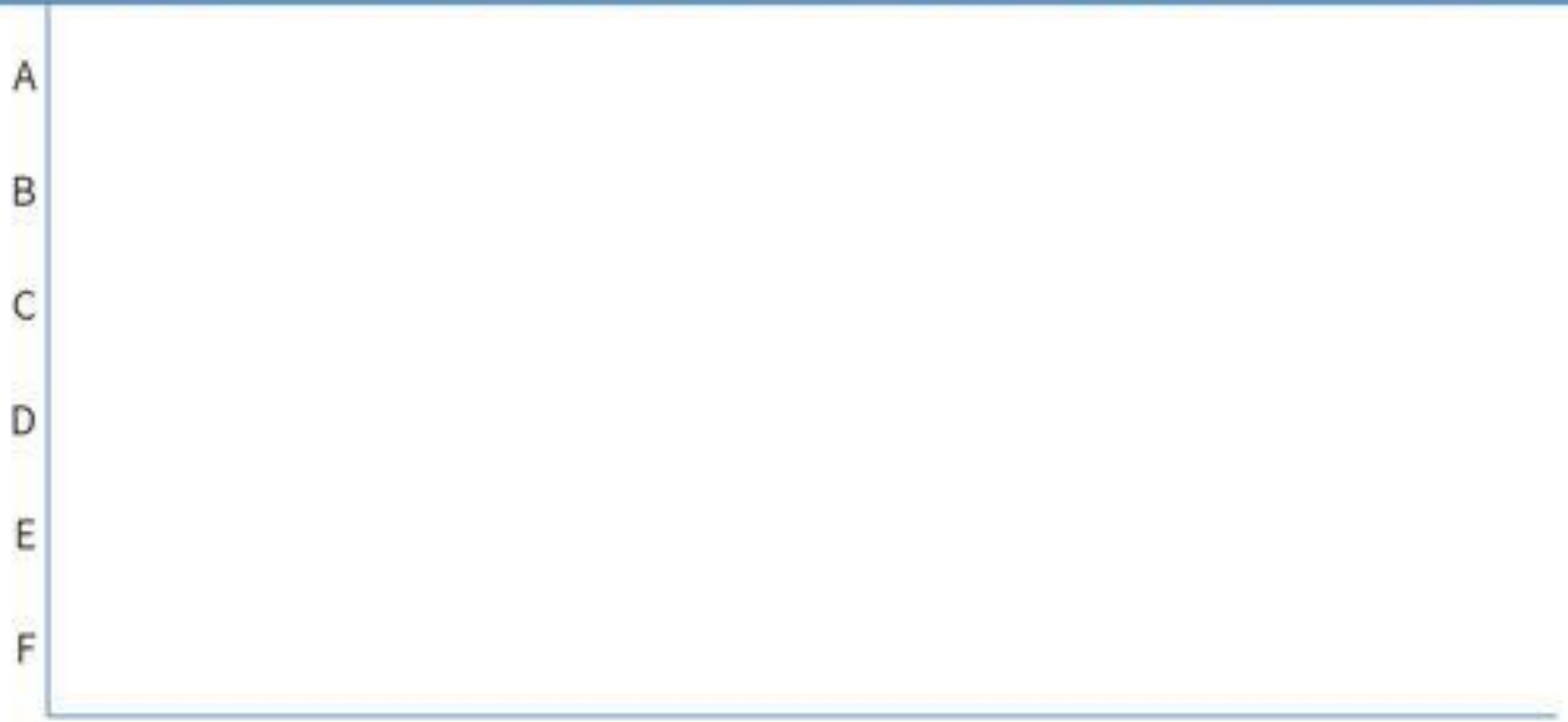
Hemoglobin	11 g/dL
Reticulocytes	4%
Leukocytes	9,100/mm^3
Platelets	244,000/mm^3
Maternal blood group	O, Rh-negative
Anti-Rh antibody titer	positive
Fetal blood group	B, Rh-negative
Serum	
Bilirubin, total	11.3 mg/dL
Direct	0.3 mg/dL

Which of the following is the most likely cause of this patient's condition?

- A Viral infection
- B RBC enzyme deficiency
- C RBC sickling
- D Anti-D antibodies
- E Biliary duct malformation
- F Anti-B antibodies

AMBOSS
ELITE MEDICAL PREP

AMBOSS: Which of the following is the most likely cause of the patient's condition?



An otherwise healthy, exclusively breastfed 4-day-old neonate is brought to the physician because of yellowing of his skin and eyes. His urine has been clear and stools have been normal. He was born at term by vacuum-assisted delivery and weighed 4000 g (8 lb 8 oz). Pregnancy was complicated by gestational diabetes mellitus. His older sibling had jaundice in the neonatal period. Vital signs are within normal limits. He appears alert and comfortable. Physical examination shows jaundice of the skin and sclerae. The liver is palpated 1 cm below the right costal margin. Laboratory studies show:

Hemoglobin	17 g/dl
Reticulocyte count	0.5 %
Total bilirubin	21.2 mg/dl
Direct bilirubin	2 mg/dl
Indirect bilirubin	19.1 mg/dl
Coombs test	Negative

Which of the following is the most appropriate next step in management?

A Intravenous immunoglobulin

B Increase frequency of breast feeds

C Replace breast feeding with formula feeds

D Observation only

E MRI of the brain

F Phototherapy

G Exchange transfusion

AMBOSS

ELITE MEDICAL PREP

An otherwise healthy, exclusively breastfed 4-day-old neonate is brought to the physician because of yellowing of his skin and eyes. His urine has been clear and stools have been normal. He was born at term by vacuum-assisted delivery and weighed 4000 g (8 lb 8 oz). Pregnancy was complicated by gestational diabetes mellitus. His older sibling had jaundice in the neonatal period. Vital signs are within normal limits. He appears alert and comfortable. Physical examination shows jaundice of the skin and sclerae. The liver is palpated 1 cm below the right costal margin. Laboratory studies show:

Hemoglobin	17 g/dl
Reticulocyte count	0.5 %
Total bilirubin	21.2 mg/dl
Direct bilirubin	2 mg/dl
Indirect bilirubin	19.1 mg/dl
Coombs test	Negative

Which of the following is the most appropriate next step in management?

A Intravenous immunoglobulin

B Increase frequency of breast feeds

C Replace breast feeding with formula feeds

D Observation only

E MRI of the brain

F Phototherapy

G Exchange transfusion

PEDS #4

A 6-month-old boy is brought to the physician because of a 1-week history of episodes of unprovoked startle-like movements. Each movement consists of sudden, quick flexion of the head, arms, and legs. He cries during these movements, which usually occur in clusters after awakening from sleep. He has had a heart murmur since birth. His father has mild mental impairment. Examination shows three areas of skin hypopigmentation, each measuring 1 to 2 cm. A CT scan of the head shows four periventricular nodules that distort the normally smooth ventricular margins. Which of the following is the most likely diagnosis?

A. Duchenne muscular dystrophy
B. Facioscapulohumeral muscular dystrophy
C. Hepatolenticular degeneration (Wilson disease)
D. Myotonic dystrophy
E. Neurofibromatosis Type 1
F. Tuberous sclerosis

ELITE MEDICAL PREP

Summary

A 6-month-old boy is brought to the physician because of a 1-week history of episodes of unprovoked startle-like movements. Each movement consists of sudden, quick flexion of the head, arms, and legs. He cries during these movements, which usually occur in clusters after awakening from sleep. He has had a heart murmur since birth. His father has mild mental impairment. Examination shows three areas of skin hypopigmentation, each measuring 1 to 2 cm. A CT scan of the head shows four periventricular nodules that distort the normally smooth ventricular margins. Which of the following is the most likely diagnosis?

A. Duchenne muscular dystrophy
B. Facioscapulohumeral muscular dystrophy
C. Hepatolenticular degeneration (Wilson disease)
D. Myotonic dystrophy
E. Neurofibromatosis Type 1
F. Tuberous sclerosis

Infant with unusual neurologic symptoms (startles easily with sudden jerking motion), a heart murmur, hypopigmented skin spots, and nodules in the brain

ELITE MEDICAL PREP

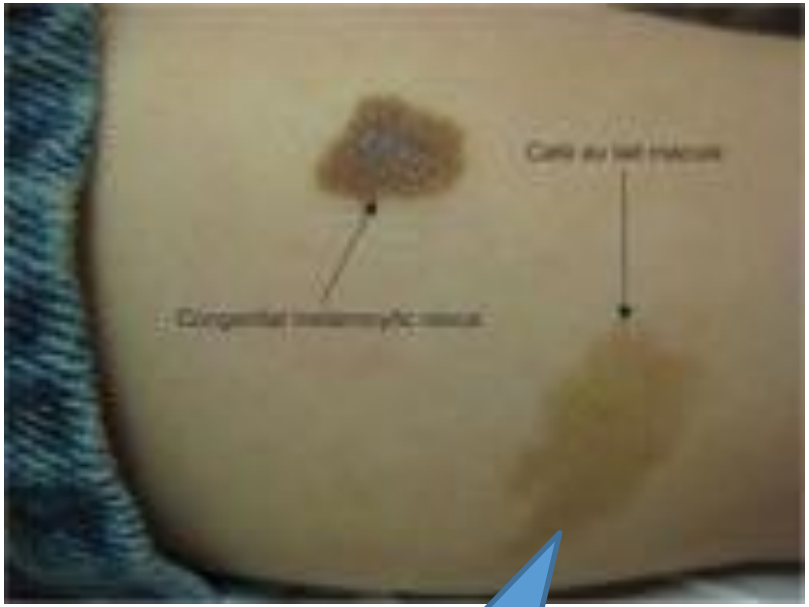
What do we know about the answers?

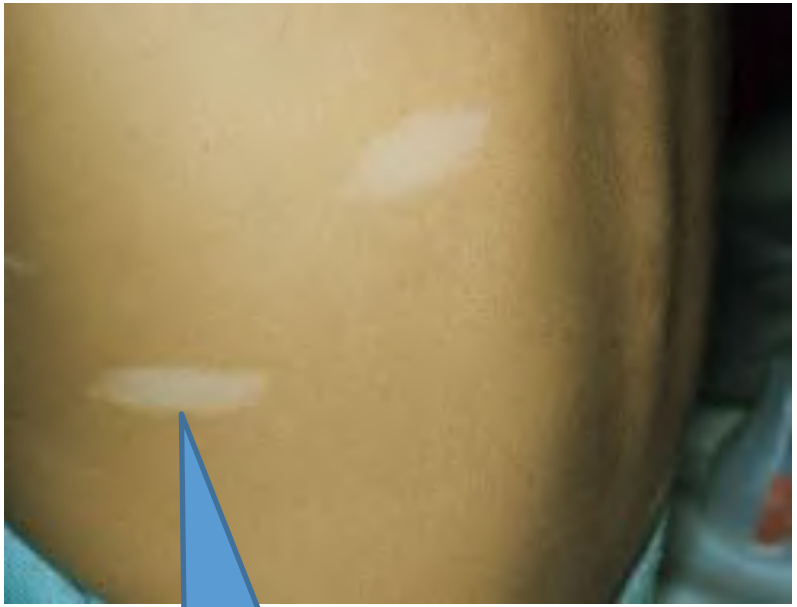
A. Duchenne muscular dystrophy
B. Facioscapulohumeral muscular dystrophy
C. Hepatolenticular degeneration (Wilson disease)
D. Myotonic dystrophy
E. Neurofibromatosis Type 1
F. Tuberous sclerosis

What do we know about the answers?

A. **Duchenne muscular dystrophy** – muscular weakness due to defective cytoskeletal element (**dystrophin**) that particularly affects the pelvic girdle muscles (Gower sign), XLR inheritance
B. **Facioscapulohumeral muscular dystrophy** – AD inherited weakness of face, scapula, and upper arm muscles, hearing loss
C. **Hepatolenticular degeneration (Wilson disease)–** AR inherited defect in Cu metabolism that leads to cirrhosis, corneal deposits (Kayser-Fleischer rings), cognitive problems, extrapyramidal symptoms (wing-flapping tremor) and renal disease
D. **Myotonic dystrophy** – Myo =muscle, tonic = contraction. Disorder of muscle that contracts, but doesn't release (i.e., can make a hand grip, but can't release), AD inheritance (DMPK gene), a/w **testicular atrophy**, balding, cataracts, arrhythmias
E. **NF1** – AD inheritance, café-au-lait spots, neurofibromas, optic pathway gliomas, axillary freckling, macrocephaly, feeding intolerance, short stature
F. **Tuberous sclerosis** – AD inheritance with hypopigmented/ash-leaf spots, developmental delay, heart/lung/kidney issues (cardiac rhabdomyoma, renal angiomyolipomas, pulmonary lymphangioleiomyatosis), cortical tubers, subependymal giant cell astrocytomas (SEGAs), sub-ependymal ventricular nodules, Shagreen patches

Café-au-lait spots vs “ash-leaf” spots



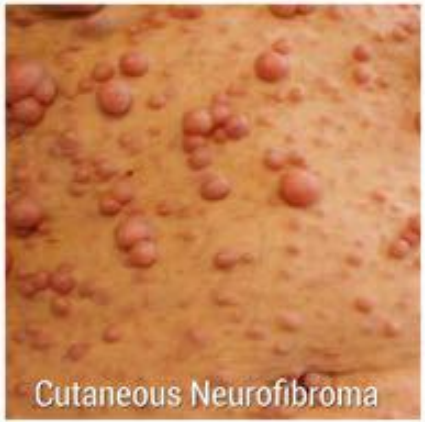


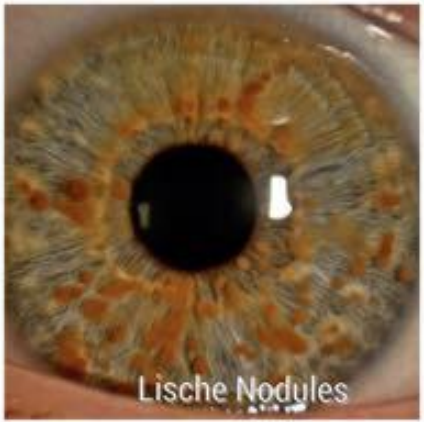
Hyper pigmented

Hypo pigmented

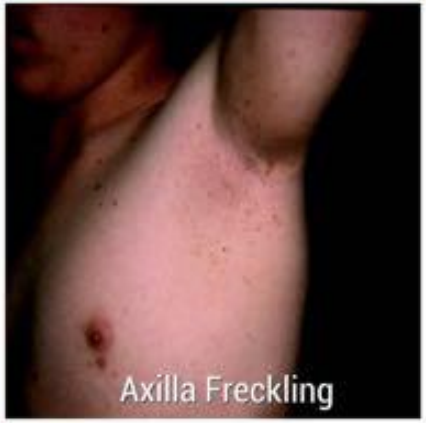
ELITE MEDICAL PREP

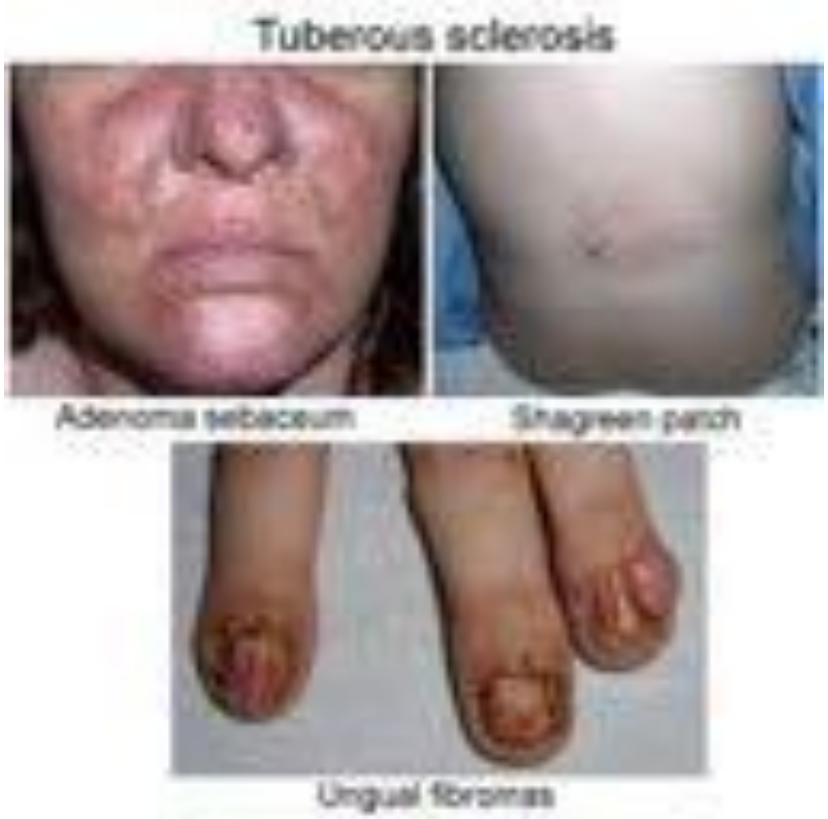
NF1 vs TS


Cutaneous Neurofibroma


Lische Nodules

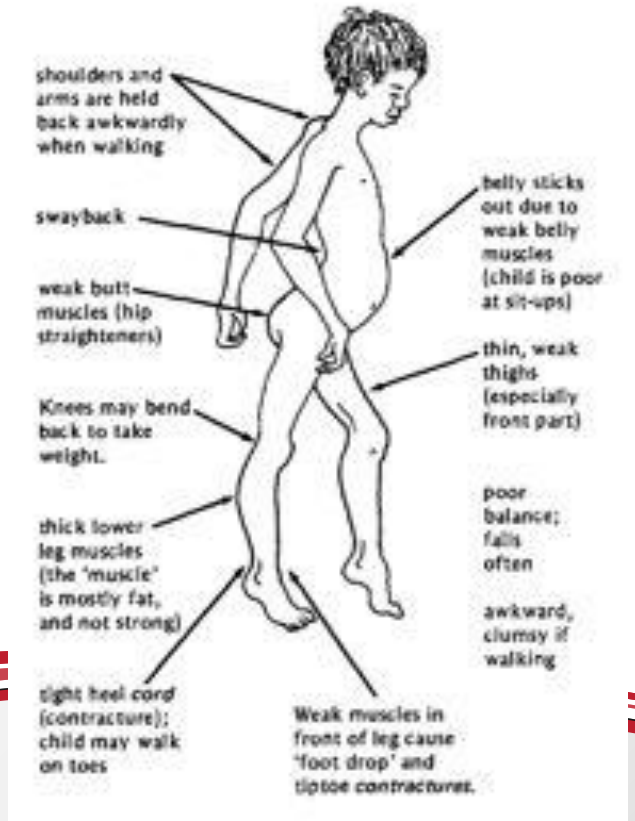

Cafe Au Lait Birthmarks

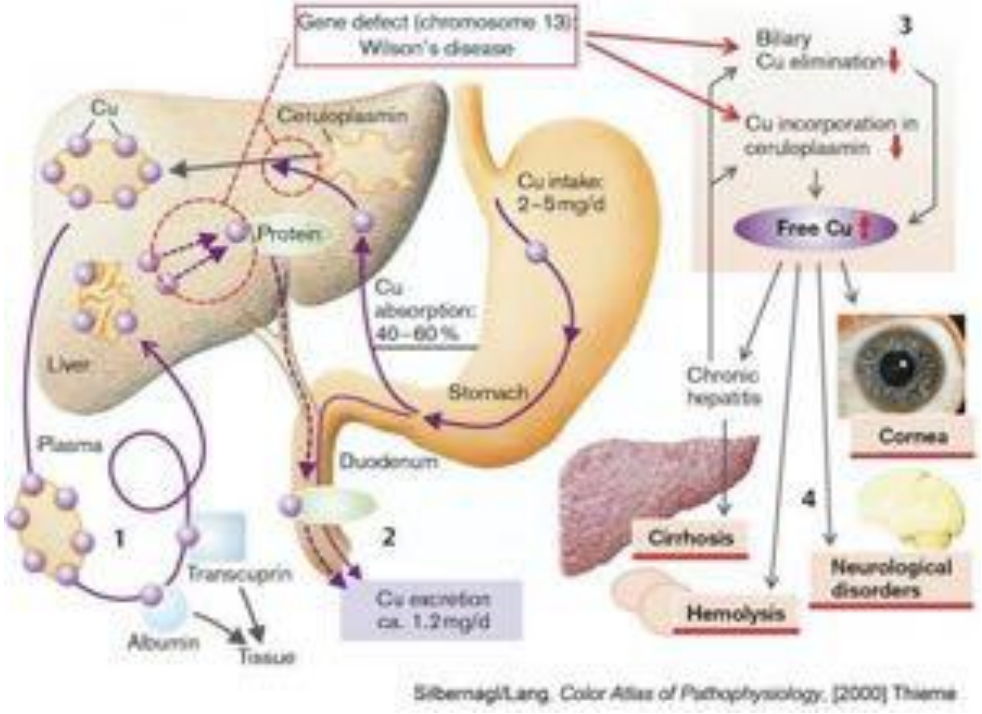

Axilla Freckling


Tuberous sclerosis
Adenoma sebaceum
Shagreen patch
Ungual fibromas

Duchenne's & Wilson's

Usually presents in adolescence





ELITE MEDICAL PREP

Answer?

A 6-month-old boy is brought to the physician because of a 1-week history of episodes of unprovoked startle-like movements. Each movement consists of sudden, quick flexion of the head, arms, and legs. He cries during these movements, which usually occur in clusters after awakening from sleep. He has had a heart murmur since birth. His father has mild mental impairment. Examination shows three areas of skin hypopigmentation, each measuring 1 to 2 cm. A CT scan of the head shows four periventricular nodules that distort the normally smooth ventricular margins. Which of the following is the most likely diagnosis?

A. Duchenne muscular dystrophy
B. Facioscapulohumeral muscular dystrophy
C. Hepatolenticular degeneration(Wilson disease)
D. Myotonic dystrophy
E. Neurofibromatosis
F. Tuberous sclerosis

Infant with unusual neurologic symptoms (startles easily with sudden jerking motion), a heart murmur, hypopigmented skin spots, and nodules in the brain

ELITE MEDICAL PREP

Answer

A 6-month-old boy is brought to the physician because of a 1-week history of episodes of unprovoked startle-like movements. Each movement consists of sudden, quick flexion of the head, arms, and legs. He cries during these movements, which usually occur in clusters after awakening from sleep. He has had a heart murmur since birth. His father has mild mental impairment. Examination shows three areas of skin hypopigmentation, each measuring 1 to 2 cm. A CT scan of the head shows four periventricular nodules that distort the normally smooth ventricular margins. Which of the following is the most likely diagnosis?

~~A. Duchenne muscular dystrophy~~
~~B. Facioscapulohumeral muscular dystrophy~~
~~C. Hepatolenticular degeneration(Wilson disease)~~
~~D. Myotonic dystrophy~~
~~E. Neurofibromatosis~~
F. Tuberous sclerosis

Infant with unusual neurologic symptoms (startles easily with sudden jerking motion), a heart murmur, hypopigmented skin spots, and nodules in the brain

ELITE MEDICAL PREP

An 11-month-old boy is brought to the emergency department by his mother after she observed jerking movements of his arms and legs for about 30 seconds earlier that morning. He has not had fever, cough, or a runny nose. He has been healthy, except for occasional eczema. He was delivered at home in Romania. His mother had no prenatal care. She reports that he has required more time to reach developmental milestones compared to his older brother. The patient's immunization records are not available. He takes no medications. He appears pale with blue eyes and has a musty odor. He has poor eye contact. Which of the following would have most likely prevented the patient's symptoms?

» Feedback

(A) Levothyroxine therapy during pregnancy

(B) Dietary restriction of phenylalanine

(C) Daily allopurinol intake

(D) Avoidance of fasting states

(E) High doses of vitamin B6

(F) Enzyme replacement therapy with L-iduronidase

AMBOSS

ELITE MEDICAL PREP

An 11-month-old boy is brought to the emergency department by his mother after she observed jerking movements of his arms and legs for about 30 seconds earlier that morning. He has not had fever, cough, or a runny nose. He has been healthy, except for occasional eczema. He was delivered at home in Romania. His mother had no prenatal care. She reports that he has required more time to reach developmental milestones compared to his older brother. The patient's immunization records are not available. He takes no medications. He appears pale with blue eyes and has a musty odor. He has poor eye contact. Which of the following would have most likely prevented the patient's symptoms?

+ Feedback

A Levothyroxine therapy during pregnancy

B Dietary restriction of phenylalanine

C Daily allopurinol intake

D Avoidance of fasting states

E High doses of vitamin B6

F Enzyme replacement therapy with L-iduronidase

AMBOSS

ELITE MEDICAL PREP

A 3175-g (7-lb) female newborn is delivered at 37 weeks to a 26-year-old primigravid woman. Apgar scores are 8 and 9 at 1 and 5 minutes, respectively. The pregnancy had been uncomplicated. The mother had no prenatal care. She immigrated to the US from Brazil 2 years ago. Immunization records are not available. One day after delivery, the newborn's temperature is 37.5°C (99.5°F), pulse is 182/min, respirations are 60/min, and blood pressure is 82/60 mm Hg. The lungs are clear to auscultation. Cardiac examination shows a continuous heart murmur. The abdomen is soft and nontender. There are several discolored areas on the skin that are non-blanchable upon pressure application. Slit lamp examination shows cloudy lenses in both eyes. The newborn does not pass her auditory screening tests. Which of the following is the most likely diagnosis?

Feedback

(A) Congenital varicella infection

(B) Congenital parvovirus B19 infection

(C) Congenital syphilis

(D) Congenital rubella infection

(E) Congenital toxoplasmosis

(F) Congenital CMV infection

AMBOSS

ELITE MEDICAL PREP

A 3175-g (7-lb) female newborn is delivered at 37 weeks to a 26-year-old primigravid woman. Apgar scores are 8 and 9 at 1 and 5 minutes, respectively. The pregnancy had been uncomplicated. The mother had no prenatal care. She immigrated to the US from Brazil 2 years ago. Immunization records are not available. One day after delivery, the newborn's temperature is 37.5°C (99.5°F), pulse is 182/min, respirations are 60/min, and blood pressure is 82/60 mm Hg. The lungs are clear to auscultation. Cardiac examination shows a continuous heart murmur. The abdomen is soft and nontender. There are several discolored areas on the skin that are non-blanchable upon pressure application. Slit lamp examination shows cloudy lenses in both eyes. The newborn does not pass her auditory screening tests. Which of the following is the most likely diagnosis?

Feedback

A Congenital varicella infection

B Congenital parvovirus B19 infection

C Congenital syphilis

D Congenital rubella infection

E Congenital toxoplasmosis

F Congenital CMV infection

AMBOSS

ELITE MEDICAL PREP

A 2-day old male newborn delivered vaginally at 36 weeks to a 29-year-old woman, gravida 3, para 2, has generalized convulsions lasting 2 minutes. Previous to the event, he had difficulty feeding and was lethargic. Pregnancy and delivery were uncomplicated. Apgar scores were 7 and 8 at 1 and 5 minutes, respectively. Pregnancy and delivery of the mother's first 2 children were also uncomplicated. Medications of the mother include folic acid and a multivitamin. The mother's immunizations are up-to-date. The infant appears icteric. His vital signs are within normal limits. The infant's weight and length are at the 5th percentile, and his head circumference at the 99th percentile for gestational age. There are several purpura of the skin. Ocular examination shows posterior uveitis. The patient does not pass his auditory screening tests. Cranial ultrasonography shows ventricular dilatation, as well as hyperechoic foci within the cortex, basal ganglia, and periventricular region. Which of the following is the most likely diagnosis?

Feedback

A Congenital toxoplasmosis

B Congenital rubella infection

C Congenital CMV infection

D Congenital syphilis infection

E Congenital parvovirus infection

F Congenital varicella infection

A 4 year old boy with asthma is brought to the emergency department because of a 4-hour history of difficulty breathing. Physical exam shows tachypnea and intercostal and subcostal retractions. Expiratory wheezing is heard bilaterally on auscultation. The child's respiratory status finally improves after several days of inpatient treatment. During this time the clinical team elicits further clinical history. Per the family the child had been given an analgesic medication several hours before onset of the acute respiratory symptoms. It is believed that this medication may have triggered the acute asthma attack. Which of the following is the most likely suspected medication?

A. Ibuprofen
B. Acetaminophen
C. Celecoxib
D. Prednisone
E. Codeine

A 4 year old boy with asthma is brought to the emergency department because of a 4-hour history of difficulty breathing. Physical exam shows tachypnea and intercostal and subcostal retractions. Expiratory wheezing is heard bilaterally on auscultation. The child's respiratory status finally improves after several days of inpatient treatment. During this time the clinical team elicits further clinical history. Per the family the child had been given an analgesic medication several hours before onset of the acute respiratory symptoms. It is believed that this medication may have triggered the acute asthma attack. Which of the following is the most likely suspected medication?

A. Ibuprofen

B. Acetaminophen

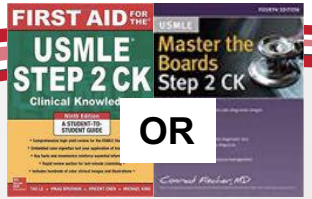
C. Celecoxib

D. Prednisone

E. Codeine

What to do RIGHT NOW:
Leveraging Qbank. Use MTB/FA as a supplement to regular studying

What You Need



- **Uworld QBank**
  - Go through the corresponding Qbank questions with the rotation you are studying
  - Tutor mode is best as it allows you to fully read the explanations and learn without time pressure
  - The scores aren't as important as the exposure to real test material and high-yield topics

- **Review Resource:**
  - Regularly use a video series—become comfortable with the coverage, style, & content
  - Read the First Aid chapter that corresponds with the rotation you are on

Leveraging Qbank and First Aid as a supplement to regular studying

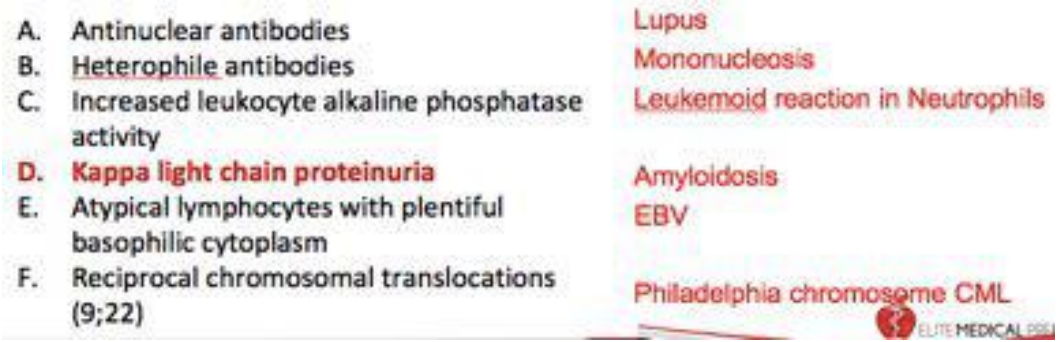
Maximize your learning	• Make flashcards of key topics and facts you want to remember; especially drugs • As you study the pathophysiology of disease, refer back to first year lectures to first review the normal physiology
Look for patterns	• The USMLE tends to utilize the same phrases/words to describe certain disease processes (i.e fatty-greasy stools = malabsorption) – take note of these • While reviewing Qbank questions, determine what you would expect the prompt to have given you to if the wrong answers were correct

The goal right now is QUALITY, not quantity.

ELITE MEDICAL PREP

Leveraging Qbank and Review resources as a supplement to regular studying.

How you can get the most out of every question?



- **Practice decoding the answer choices on every question**

ELITE MEDICAL PREP

FAQs about Setting your study calendar

- **How detailed should I make the calendar at this time?**
  - **Planning down to the hour each day rarely works out**
    - causes more anxiety than it's worth
  - **Stick to the "topic" level. Supplement your rotations w/ few daily Qs and limited reading.**
  - **Try to cluster information to refine your ability to distinguish between associated pathologies**
- **What if I get behind?**
  - **Focus on your rotations**
  - **Now is not the time to cram for the USMLE. Slow and steady work is the key here**

Next Steps in our engagement

- **We are available for feedback and questions. A dedicated email has been created for students in your class year at Ben Gurion.**
  bgu2020@elitemedicalprep.com
- **Please send questions and comments after the sessions to this email. Responses will be prompt and questions relevant to the group will be summarized and shared**
- **Collect feedback from you and the students regarding our service, so that we may better serve you all moving forward**


Thank You.
ELITE MEDICAL PREP