

C.K. is a 62-year-old male who comes to clinic for a follow-up visit for multiple medical problems. He complains of increased fatigue, thirst, and urination. C.K. takes them according to the following schedule insulin: 7 AM = NPH 20 U & R 10 U; 7 PM = NPH 10 & R 5 U. Physical Examination revealed obese, cushingoid appearing male in no apparent distress. His VS T 37; BP 170/95; HR 88-regular; RR 20; Wt 100 kg; Ht 178 cm.

**Results of Laboratory Tests**

Na 141	BUN 53	WBC 12	Ca 7.8
K 4.0	Cr 3.6	Plts 198	PO4 6.1
Cl 109	Hct 33	Alb 3.4	MgP
HCO <sub>3</sub> 19	Hgb 11	<b>FBG 400</b>	Chol 250 TGL 160

Urinalysis: (++) Glucose; (+) Protein; (-) Ketones; (-) Crystals ; (-) WBCs

Over the last few weeks, blood glucose recorded at home was as follows:

	7 AM	12 noon	7 PM	10PM
Mon	110	120	80	220
Tus	100	140	90	210
Wed	110	150	100	200
Thurs	110	160	90	215

Questions:

1. According to C.K.'s FBG & daily glucose readings, which dose of insulin should be increased:
  - a) Increase AM regular and AM NPH
  - b) Increase PM regular
  - c) Increase PM NPH only
  - d) Increase AM NPH only
2. According to the answer in the above question, the type of insulin that should be used:
  - a) Regular
  - b) NPH
  - c) Glargine or Lent
3. The total daily dose of calculated insulin should be divided into two doses to be administered in the morning and evening dose in a ratio of:
  - a) 1:1
  - b) 2/3:1/3
  - c) 2:1
  - d) Only in morning
4. Over the last week, C.K. blood glucose recorded at the hospital while he was on both NPH and regular insulin for both am & pm injections, and was found to read as follows: At 7 AM, blood glucose = 110; while at 12 noon = 90; 6 PM reading = 250; 11PM = 100; accordingly, as a clinical pharmacist you should increase his:
  - a) Am NPH
  - b) Am regular
  - c) Pm NPH
  - d) Pm regular
5. Which of the followings insulin injection sites resulted in a higher response:
  - a) Arms
  - b) Thigh
  - c) Back
  - d) Abdomen.
6. Which of the followings insulin preparations has the longest effects and clear?
  - a) Lispro
  - b) Glargine
  - c) Regular insulin
  - d) NPH

7. **Objective findings in case of C.K.'s diabetes include all of the following EXCEPT:**
- a) FBG
  - b) (+ +) glucose in urine
  - c) Thirst
  - d) > HgA1c
8. **Drug-induced DM includes all of the followings EXCEPT:**
- a) Thyroid hormones
  - b) Glucocorticoids
  - c) Beta-blockers
  - d) Paracetamol
9. **The diabetic patient with insulin metabolic syndrome would be expected to have THREE of the following EXCEPT:**
- a) Hypertension (BP >130/>85)
  - b) Triglyceride > 150
  - c) Heart failure
  - d) Central obesity
10. **All of the following are considered chronic complications of type 1 diabetes EXCEPT:**
- a) Diabetic Retinopathy
  - b) Diabetic Nephropathy
  - c) Diabetic ketoacidosis
  - d) Diabetic Neuropathy
  - e) None of the above
11. **T.T. is a 35 YO diabetic patient. The insulin resistance syndrome (metabolic syndrome) would be expected in this diabetic patient if he has THREE of the following EXCEPT:**
- a) Hypertension (BP >130/>85)
  - b) Triglyceride > 150
  - c) Heart failure
  - d) Central obesity
12. **ALL of the following is characteristic of honeymoon period EXCEPT:**
- a) It is a remission phase with normal blood glucose lasts for days to weeks
  - b) During this period, one should reduce the insulin dose
  - c) A period of time where a groom (male) usually take his bride (female) to an out to relax
  - d) One should not stop administering insulin
13. **Afrizza<sup>®</sup> can be used for which diabetes type?**
- a. Type I
  - b. Type II
  - c. Both a & b
  - d. Type I only
14. **Afrizza<sup>®</sup> is indicated in all of the following patient EXCEPT:**
- a. Smoker who stopped smoking for > noe year
  - b. Want to discontinue insulin injections with meals
  - c. Need a rapid acting insulin
  - d. COPD or asthmatic patient
15. **Afrizza<sup>®</sup> should be used with long acting insulin in people who have type 2 diabetes**
- a. True
  - b. False
16. **The available doses of Afrizza<sup>®</sup> that is NOT currently in the market is:**
- a. 8
  - b. 6
  - c. 4
  - d. 12



17. Which insulin patch used to release insulin to counteract rise in blood sugar following meals?  
 a) Basal insulin patches  
 b) Bolus insulin patches
18. Which of the following patient characteristics is the main risk factor for the development of diabetes?  
 a) History of gestational diabetes  
 b) Age = 45 years  
 c) History of hyperlipidemia  
 d) History of renal insufficiency  
 e) All of the above
19. Which of the following **BEST** describes a recommended goal of therapy for a patient with diabetes?  
 a) HbA1c < 5%  
 b) Fasting blood glucose < 140 mg/dl  
 c) 2-hour Post-prandial blood glucose < 200 mg/dl  
 d) HbA1c < 7%  
 e) Pre-prandial blood glucose < 100 mg/dl
20. A 23 year-old female known to have type 1 diabetes is found unconscious by her roommate. She is tachycardic and diaphoretic. A fingerstick measurement of her blood glucose is 45 mg/dl. Which of the following is **BEST** recommendation for management of this patient.  
 a) Reduce insulin dose 25% and observe  
 b) Administer glucagone 1 mg SQ  
 c) Administer 8 oz. of fruit juice orally  
 d) Administer propranolol to lower heart rate  
 e) Identify the precipitating cause
21. Which of the following is a symptom of hypothyroidism?  
 a) Weight gain  
 b) Constipation  
 c) Dry Skin/ Lethargy  
 d) All of the above
22. Which statement regarding insulin therapy is true?  
 a) Glargine and regular insulin should be mixed in the same syringe  
 b) Regular insulin should be drawn up before NPH insulin when mixing  
 c) NPH insulin should be drawn up before regular insulin when mixing  
 d) 70/30insulin should be administered intramuscularly
23. A 33 year-old female with history of type 1 diabetes is currently receiving: Human insulin NPH 24 units and Regular 10 units SQ q AM before breakfast, and NPH 16 units and Regular 10 units SQ q PM before dinner.

Blood Sugar	Fasting	Noon	5 p.m.	Bedtimes
Level- mg/dl	125-135	230- 245	150- 160	130- 135

- a) Increase AM NPH to 26 units  
 b) Increase AM Regular to 14 units  
 c) Increase PM NPH to 20 units  
 d) Move PM NPH to bedtime (keep at 16 units)  
 e) No change necessary at this time
24. Signs and symptoms of **hypoglycemia** include all of the following **EXCEPT**:  
 a) Blurred vision  
 b) Sweaty palms  
 c) Tachycardia  
 d) Weight loss  
 e) None of the above

25. Recommended non-drug management for patient with type 1 Diabetes includes:
- Exercise
  - Diet (sufficient caloric intake)
  - Foot & eye care
  - All of the above
  - None of the above
26. Which of the following is the BEST recommendation for frequency of monitoring of HbA1c?
- Weakly
  - Monthly
  - Every 3 months
  - Every 6 months
  - Annually
27. All of the following are considered Chronic complications of type 1 diabetes EXCEPT:
- Diabetic Retinopathy
  - Diabetic Nephropathy
  - Diabetic ketoacidosis
  - Diabetic Neuropathy
  - None of the above
28. T.T. is a 35 YO diabetic patient. The insulin resistance syndrome (metabolic syndrome) can be established in this diabetic patient if he has THREE of the following EXCEPT:
- Hypertension (BP >130/>85)
  - Triglyceride > 150
  - Polycystic ovary syndrome
  - Central obesity
29. Which of the following is characteristic of Somogi effect?
- 3 am hypoglycemia
  - Rebound morning hyperglycemia
  - 4-8 am hyperglycemia
  - Answer a & b are correct
  - Answer c & d are correct
30. ALL of the following is characteristic of Dawn Phenomenon EXCEPT:
- A rise in blood glucose between 4-8 am
  - Occurs in type 1, 2, and in normal individual
  - It is due to increase in counter regulatory hormones
  - All you need to do is to monitor blood glucose
  - There is an increase in growth hormone level

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Choose one of the following answers for questions 31 to 38, noting that the same answer may be used more than one time.

A- HAV      B- HBV      C-HCV      D-Both B&C      E- All of the above

31- Its incubation period is about 28 days.

32- Interferon monotherapy used for its treatment.

33- No vaccine available for it.

34- Mild but persistent elevations of the serum aminotransferases, bilirubin, and gamma-globulin levels can be seen.

35- Positive serum IgM is the gold standard of diagnosis

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- 36-Liver injury is immune mediated  
37-Ig is effective in modifying the course when used within 2 weeks following the exposure  
38- Transmission occurs through contact with infected blood products
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Choose one of the following answers about (interpretation of the laboratory profile of HBV) for questions 39 to 40, noting that the same answer may be used more than one time.

- A- Early acute Hepatitis B                      B- Chronic Hepatitis B  
C-Vaccinated Hepatitis B

- 39- HBsAg +ve, HBeAg +ve, Anti-HBs -ve, Anti-HBe -ve, Anti-HBc +ve  
40- HBsAg -ve, HBeAg -ve, Anti-HBs +ve, Anti-HBe -ve
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Choose one of the following answers (about side effects of drugs) for questions 41 to 43, noting that the same answer may be used more than one time.

- A-Hemolytic anemia    B- Nephrotoxicity    C- rash    D- Thyroid disorders  
E- None of the above

- 41-Ribavirin  
42-Simeprevir  
43-Harvoni
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Choose one of the following answers (Concerning dose adjustment of interferon) for questions 44 to 45, noting that the same answer may be used more than one time.

- A-Decrease the dose to half                      B-immediately discontinued

- C- Can not be taken as first choice  
44-granulocytopenia (<500/mm<sup>3</sup>)  
45- thrombocytopenia (<30,000/mm<sup>3</sup>) .
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Choose one of the following answers for questions 46 to 56, noting that the same answer may be used more than one time.

- A- Chronic pancreatitis                      B- Irritable bowel syndrome  
C- Ulcerative colitis    D- Acute pancreatitis    E- Crohn's disease

- 46- Small bowel involvement and strictures detected on **radiographs** are characteristic of it.  
47- Colectomy is the last option for treatment  
48-Omeprazole must be used in combination with exogenous lipase enzyme for its treatment  
49- Small and frequent meals and a diet restricted in fat is recommended  
50- Removal of underlying gallstone is among the non pharmacological therapy  
51- Lubiprostone can be used for treatment  
52- There is greater reliance on drug therapy than surgery  
53- It can be diagnosed by elevated serum amylase or lipase  
54- Its clinical presentation is abdominal cramping, frequent bowel movements, blurred vision  
55- Dietary and life style is the first choice of treatment  
56- There is no test to diagnose. Tests may be done to rule out other problems
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Choose one of the following answers (nausea and vomiting) for questions 57 to 60, noting that the same answer may be used more than one time.

A- Meclizine, cyclizine      B- Ondasetron      C- Aprepitant

- 57-Anti-emetic use during pregnancy
  - 58-Disorders of balance, motion sickness
  - 59-Prophylaxis in Chemotherapy-induced nausea and vomiting
  - 60-Prophylaxis in Radiation-induced nausea and vomiting
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**61- Concerning asthma early response reaction, which of the following is correct:**

- A- It usually lasts approximately 4-6 hour after allergen exposure.
- B- Corticosteroids can effectively block the early phase reaction.
- C-  $\beta$ 2-agonists can effectively block the early phase reaction.
- D- Nasal congestion usually occurs in the early phase reaction.

**62- Regarding the role of IL-4, which of the following is correct:**

- A- It stimulates the production of IgE.
- B- It activates eosinophil.
- C- It stimulates mucus production.
- D- It causes epithelial damage

**63- Histamine release in asthma may lead to:**

- A- Airway injury.
- B- Bronchospasm.
- C- Bronchial hyper responsiveness.
- D- Emphysema.

**64- ..... can be used at home by asthmatic patients to assess chronic therapy:**

- A- Spirometer.
- B- Glucometer.
- C- Peak flow meter.
- D- Endoscopy.

**65- Factors that may worsen nocturnal asthma include:**

- A- Increased epinephrine level at night.
- B- Gastroesophageal reflux.
- C- Warm and humid air.
- D- Low histamine level at night.

**66- Concerning the use of  $\beta$ 2-agonist in asthma, which of the following is correct:**

- A- It reduces bronchial hyperresponsiveness.
- B- It causes reduction in cGMP.
- C- It activates adenylyclase and produces an increase in intracellular cyclic AMP
- D- It decreases inflammatory cell activation.

**67- .....can decrease eosinophil basic protein release.**

- A- Corticosteroids.
- B- Montelukast
- C- Cromolyn sodium.
- D- Theophylline

**68- Regarding omalizumab, which of the following is correct:**

- A- It is a dilute antigen with increasing antigen concentration.
- B- It can be used as chewable tablets for children.
- C- It is used for non-responding severe persistent asthma.
- D- It may cause cardiac arrhythmia.

**69- Regarding zafirlukast , which of the following is correct:**

- A- It reduces inflammation and bronchoconstriction in asthmatic patients.
- B- It inhibits CYP3A4.
- C- Usually used 4 times daily.
- D- It inhibits leukotriene synthesis.



**70- Concerning salmeterol, which of the following is correct:**

- A- It reduces bronchial inflammation.
- B- It is used for acute relief of asthmatic attack.
- C- It blocks both early and late phase response of asthma.
- D- Its effect lasts for 12 hours.

**71- Which of the following is correct concerning emphysema:**

- A- It is pathological alveolar wall destruction and airspace enlargement.
- B- It occurs in severe acute asthmatic exacerbations.
- C- It leads to increasing gas exchange surface area.
- D- It is a pathological hallmark in allergic rhinitis.

**72- Which of the following is correct concerning COPD:**

- A- It involves a reversible airflow limitation
- B- It involves small airways fibrosis
- C- It occurs due to activation of eosinophils
- D- Atopy is a risk factor for COPD.

**73- ..... are the main inflammatory cells in COPD:**

- A- TH2 lymphocytes
- B- Eosinophils
- C- Mast cells
- D- Neutrophils

**74- Oxidative stress in COPD results in:**

- A- Increasing IL-13 level
- B- Degranulation of mast cells.
- C- Damage lipids and proteins.
- D- Inhibit proteases activity

**75- Regarding the use of theophylline in COPD, which of the following is correct:**

- A- It produces bronchodilatation through increasing cGMP
- B- It inhibits calcium influx into smooth muscle
- C- It is used as MDI or DPI
- D- It decreases mucus secretion

**76- Regarding use of corticosteroids in COPD, which of the following is correct:**

- A- It inhibits the release of proteolytic enzymes from leukocytes
- B- It increases capillary permeability.
- C- It is effective as a relief of acute symptoms
- D- Regular single oral prednisone dose is usually required in COPD.

**77- Regarding use of ipratropium bromide in COPD, which of the following is correct:**

- A- Hoarseness is common side effect
- B- It is a long acting agent used only once daily
- C- It causes bronchodilatation through decreasing cGMP.
- D- It causes prostaglandin inhibition

**78-  $\alpha$ 1-antitrypsin deficiency is a risk factor for:**

- A- Allergic rhinitis
- B- Emphysema
- C- Asthma
- D- Chronic bronchitis

**79- Concerning albuterol use in COPD, which of the following is correct:**

- A- It increases mucociliary clearance
- B- It decreases mucus secretion
- C- Tachycardia, nausea and vomiting are common side effects
- D- It can be used once daily

**80- Regarding the use of corticosteroids in asthma, which of the following is correct:**

- A- It causes bronchodilatation through inhibition of phosphodiesterase enzyme
- B- It is used for rapid relief of acute asthmatic attack
- C- It should be started on low doses then doses are increased gradually
- D- It should be started on higher and more frequent doses and then tapered down

**81- Concerning hay fever, which of the following is correct:**

- A- It occurs year-round in response to non-seasonal allergens
- B- It occurs in response to seasonal allergen as pollen grain.
- C- It usually causes more chronic symptoms.
- D- It occurs most commonly in summer.

**82- Allergens of perennial rhinitis include:**

- A- Dust mites
- B- Pollen grains
- C- Weeds
- D- Grass

**83- The late phase of allergic rhinitis includes:**

- A- Release of leukotrienes and bradykinins
- B- Rhinorrhea
- C- Sneezing
- D- Nasal congestion

**84- Concerning chlorpheniramine maleate, which of the following is correct:**

- A- It is intranasal antihistaminic for allergic rhinitis
- B- It rarely cause sedation
- C- It is effective in treatment of mild asthma
- D- Dry mouth, constipation and blurred vision are common side effects.

**85- Concerning antihistaminics use in allergic rhinitis, which of the following is correct:**

- A- It decreases capillary permeability and itching.
- B- It effectively decrease rhinorrhea, sneezing and nasal congestion
- C- Nasal stinging is common side effect
- D- It is only used in severe allergic rhinitis

**86- Concerning systemic decongestants, which of the following is correct:**

- A- Rebound vasodilation with congestion may occur within 3-5 days.
- B- It should be avoided in hypertensive patients
- C- It acts on cholinergic receptors in the nasal mucosa to produce vasoconstriction.
- D- It increases drowsiness if used with first generation antihistaminics

**87- Regarding intranasal corticosteroids, which is the following is correct:**

- A- It effectively relief rhinorrhea and lacrimation.
- B- It decreases the activity of lymphocytes, eosinophils, neutrophils and macrophages
- C- It has drying effect that reduces nasal, salivary and lacrimal gland hypersecretion
- D- Naphazoline hydrochloride is an effective intranasal corticosteroid.



**88- Concerning montelukast use in allergic rhinitis, which of the following is correct:**

- A- It is used for perennial rhinitis
- B- It is used for seasonal rhinitis
- C- It blocks antibody response to allergens
- D- It is given as syrup for infants

**89- Nasal decongestants include:**

- A- Oxymetazoline hydrochloride
- B- Cetirizine
- C- Azalastine
- D- Flunisolide

**90- Regarding immunotherapy, which of the following is correct:**

- A- It is effective in severe non-responding COPD
- B- Omalizumab is effective in severe non-responding allergic rhinitis
- C- Azalastine is an immunotherapy for severe asthma.
- D- It is high cost.

**Q91-Q95:**

**65-years old male admitted to the hospital complaining from dyspnea, cough and increased sputum production. Spirometry results of this patient was FEV1 45%, FEV1\FVC 55% and the administration of albuterol caused an improvement of FEV1 of 10%.**

**91- The most probable diagnosis of the patient condition is:**

- A- Asthma
- B-COPD
- C- Allergic rhinitis

**92- The most probable risk factor for the patient condition is:**

- A- Atopy
- B- Tobacco smoking

**93- The severity of the patient condition is:**

- A- Mild
- B- Moderate
- C- Severe
- D- Very severe

**94- The non-pharmacological treatment for the patient condition should include:**

- A-Stay in air conditioned room with frequent filter changes
- B- Encasing pillows, mattresses with airtight plastic
- C-Vaccination with pneumococcal vaccine and annual influenza vaccine

**95- The proposed pharmacological treatment for the patient condition may include:**

- A-Azalastine
- B- Loratidine
- C- Fluticasone
- D- Montelukast

**Q 96-Q100:**

18-years old female admitted to the hospital complaining from chest tightness, cough and whistling sound during expiration. The patient said that these symptoms repeated about 4 times in the last week and 5 days ago she awaked at 4 a.m. complaining of severe dyspnea. Spirometry results of this patient was FEV1 82%, FEV1\FVC 85% and the administration of albuterol caused an improvement of FEV1 of 14%.

**96- The most probable diagnosis of the patient condition is:**

- A- Asthma
- B-COPD
- C- Allergic rhinitis

**97- According to the severity classification, the patient condition is:**

- A- Mild
- B- Moderate
- C- Severe
- D- Very severe

**98- The most probable risk factor for the patient condition is:**

- A- Atopy
- B- Tobacco smoking

**99- Which of the following drugs should be given to patient for rapid relief of her symptoms:**

- A-Isoproterenol
- B- Loratidine
- C- Prednisone
- D- Montelukast

**100- The drugs that may worsen the patient condition include:**

- A- Fluticasone
- B- Aspirin
- C- Theophylline
- D- Digoxin

**End of your final exam**

**BEST WISHES**