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pharmacology 1
submit to mam nadra khaleeq
Q1
Anthelmintics or antihelminthics are a group of antiparasitic drugs that expel parasitic worms (helminths) and other internal parasites from the body by either stunning or killing them and without causing significant damage to the host. They may also be called vermifuges (those that stun) or vermicides (those that kill). Anthelmintics are used to treat people who are infected by helminths, a condition called helminthiasis. These drugs are also used to treat infected animals.
MOA of mebandazol :Blocks glucose uptake; inhibits the formation of helminth microtubules in susceptible adult intestine-dwelling helminths
Side effect : Angioedema
Fever
Dizziness
Headache
Hematuria
Leukopenia
Seizures
MOA of praziquantel :Increases cell membrane permeability to calcium in schistosomes causing the worm to dislodge following the paralysis of worm musculature
Side effect of praziquantel :
Appetite loss
Dizziness
: Drowsiness
Headache
Q2)

Type 1 and Type 2 Diabetes: What's the Difference?
Medically reviewed by Suzanne Falck, M.D., FACP — Written by Corinne O'Keefe Osborn —
Symptoms
Causes
Incidence
Risk factors
Diagnosis
Treatment
Diet
Overview

There are two main types of diabetes: type 1 and type 2. Both types of diabetes are chronic diseases that affect the way your body regulates blood sugar, or glucose. Glucose is the fuel that feeds your body's cells, but to enter your cells it needs a key. Insulin is that key.

People with type 1 diabetes don't produce insulin. You can think of it as not having a key.

People with type 2 diabetes don't respond to insulin as well as they should and later in the disease often don't make enough insulin. You can think of this as having a broken key.

Both types of diabetes can lead to chronically high blood sugar levels.

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Both types of diabetes can lead to chronically high blood sugar levels. That increases the risk of diabetes complications.

What are the symptoms of diabetes?
Both types of diabetes, if not controlled, share many similar symptoms, including:

frequent urination
feeling very thirsty and drinking a lot
feeling very hungry
feeling very fatigued
blurry vision
cuts or sores that don't heal properly
People with type 1 diabetes may also experience irritability and mood changes, and unintentionally lose weight. People with type 2 diabetes may also have numbness and tingling in their hands or feet.

Although many of the symptoms of type 1 and type 2 diabetes are similar, they present in very different ways. Many people with type 2 diabetes won't have symptoms for many years. Then often the symptoms of type 2 diabetes develop slowly over the course of time. Some people with type 2 diabetes have no symptoms at all and don't discover their condition until complications develop.

The symptoms of type 1 diabetes develop fast, typically over the course of several weeks. Type 1 diabetes, which was once known as juvenile diabetes, usually develops in childhood or adolescence. But it's possible to get type 1 diabetes later in life.
part B
There are many different types of insulin delivery devices available including syringes, pens, jet injectors, oral insulin and pumps which are detailed below.

Furthermore, insulin that can be inhaled and other new approached to insulin treatment are at different stages of availability and development throughout the world.

INSULIN SYRINGES
Direct subcutaneous insulin injection remains the most common form of delivery, using a needle and The capacity of the syringe should be chosen depending on the dosage of insulin.Other factors are needle gauge and needle length, both of which should be adjusted for comfort.
Although external insulin pumps remain hard to access and expensive, many people with diabetes find them to be accurate, precise and flexible as insulin delivery systems providing tight blood glucose control.

Like most insulin delivery aids, it is important to monitor blood glucose regularly whilst on a pump.
At this stage, implantable insulin pumps are still in development. Research teams across the globe are working to develop implantable insulin pumps to measure blood glucose levels and

provide the precise insulin dose needed.

Those pumps being developed are small, extremely discreet, and weigh very little. This type of pump is implanted surgically, and can deliver a continuous basal dose of insulin and a bolus dose when required.

INSULIN PENS
Insulin pens are a very useful way to transport insulin in a discreet way, allowing you to administer insulin on the move or whenever suits you.

Insulin pens are either disposable one-shot devices or they have replaceable cartridges
(Q3)
local anaesthetic is where a small area of the body is numbed and you remain fully conscious – often used during minor procedures. general anaesthetic is where you're totally unconscious and unaware of the procedure – often used for more serious operations
part B
There are four stages of general anesthesia, namely: analgesia - stage 1, delirium - stage 2, surgical anesthesia - stage 3 and respiratory arrest - stage 4. As the patient is increasingly affected by the anesthetic his anesthesia is said to become 'deeper'.
mechanism of action
All LAs are membrane-stabilizing drugs; they reversibly decrease the rate of depolarization and repolarization of excitable membranes (like nociceptors). Though many other drugs also have membrane-stabilizing properties, not all are used as LAs (propranolol, for example, though it has LA properties). LA drugs act mainly by inhibiting sodium influx through sodium-specific ion channels in the neuronal cell membrane, in particular the so-called voltage-gated sodium channels. When the influx of sodium is interrupted, an action potential cannot arise and signal conduction is inhibited. The receptor site is thought to be located at the cytoplasmic (inner) portion of the sodium channel. Local anesthetic drugs bind more readily to sodium channels in an activated state, thus onset of neuronal blockade is faster in rapidly firing neurons. This is referred to as state-dependent blockade.
(Q4)
mechanism of action of alkylting
Alkylating agents involve reactions with guanine in DNA. These drugs add methyl or other alkyl groups onto molecules where they do not belong. This in turn inhibits their correct utilization by base pairing and causes a miscoding of DNA. In the first mechanism an alkylating agent attaches alkyl groups to DNA bases.
adverse drugs reactions
Alkylating agents can cause hemorrhagic cystitis, resulting in dysuria, frequency, urgency, nocturia, suprapubic pain, and microscopic or gross hematuria. One of the most serious side effects of cancer treatment is cardiotoxicity, which can occur early or late in treatment.
mechanism of antimetaboites
Antimetabolites interfere with DNA and RNA synthesis by acting as false metabolites, which are incorporated into the DNA strand or block essential enzymes, so that DNA synthesis is prevented. Most agents are cell cycle phase specific for S phase.
adverse drugs reactions of antimeaboites
In general, side effects found in many antimetabolites include: nausea, vomiting, or loss of appetite; tiredness, weakness, or sore muscles; a headache and dizziness; inflammation of the mouth and lips; elevated liver enzymes, indicating inflamed or injured liver cells; hair loss; a rash or dry and cracked skin; ...
mechanism of action of plants alkaloids :In plants, alkaloids generally act as a defense against predators, due to their toxicity, bitter flavor, and action on the central nervous system, resulting in improved species survival rates .
adverse drugs reactions of plants alkaloids
[23/09, 5:38 p.m.] whatsapp: The frequently reported ADRs among vinca alkaloids were febrile neutropenia 9 (23.7%), candidiasis 8 (21.1%), vomiting 6 (15.8%), followed by anemia 3 (7.9%), and obstipation 3 (7.9%) [Figure 3]. The most common drug causing these ADRs was vincristine 38 (39.2%).
mechanism of action of monoclonal antibodies
Monoclonal antibodies are laboratory-produced molecules engineered to serve as substitute antibodies that can restore, enhance or mimic the immune system's attack on cancer cells.

They are designed to bind to antigens that are generally more numerous on the surface of cancer cells than healthy cells.
: adverse drugs reactions of monoclonal antibodies
Symptoms, which typically appear 6–21 d after drug administration, include lymphadenopathy and fever. Cutaneous symptoms, often urticarial and morbilliform eruptions and sometimes erythema and petechiae, occur in up to 95% of patients.

(Q5)
(role of vitamin k in blood clothing)
: Vitamin K helps to regulate the process of blood coagulation by assisting in the conversion certain coagulation factors into their mature forms. Without vitamin K, our bodies would be unable to control clot formation.
Vitamin K is involved in the synthesis of many factors of the coagulation cascade. Vitamin K is antagonized (inhibited) by the anticoagulant drug warfarin. Calcium and phospholipids are needed to activate tenase, which converts prothrombin to thrombin
Vitamin K is a nutrient that the body needs to stay healthy. It's important for blood clotting and healthy bones and also has other functions in the body. If you are taking a blood thinner such as warfarin (Coumadin®), it's very important to get about the same amount of vitamin K each day.
(blood clotting disorder)
Blood Clot Types
Deep Vein Thrombosis (DVT) ...
Pulmonary Embolism (PE) ...
Arterial Thrombosis. ...
Antiphospholipid Antibody Syndrome (APLS) ...
Factor V Leiden. ...
Prothrombin Gene Mutation. ...
Protein C Deficiency, Protein S Deficiency, ATIII Deficiency.
Part B
The most commonly used clot-busting drugs -- also known as thrombolytic agents -- include:
Eminase (anistreplase)
Retavase (reteplase)
Streptase (streptokinase, kabikinase)
t-PA (class of drugs that includes Activase)
TNKase (tenecteplase)
Abbokinase, Kinlytic (rokinase)
Example with detail
This family of thrombolytic drugs is used in acute myocardial infarction, cerebrovascular thrombotic stroke and pulmonary embolism. For acute myocardial infarctions, tissue plasminogen activators are generally preferred over streptokinase.

Alteplase (Activase®; rtPA) is a recombinant form of human tPA. It has a short half-life (~5 min) and therefore is usually administered as an intravenous bolus followed by an infusion.
Retaplase (Retavase®) is a genetically engineered, smaller derivative of recombinant tPA that has increased potency and is faster acting than rtPA. It is usually administered as IV bolus injections. It is used for acute myocardial infarction and pulmonary embolism.
Tenecteplase (TNK-tPA) has a longer half-life and greater binding affinity for fibrin than rtPA. Because of its longer half-life, it can be administered by IV bolus. It is only approved for use in acute myocardial infarction.
Streptokinase
Streptokinase and anistreplase are used in acute myocardial infarction, arterial and venous thrombosis, and pulmonary embolism. These compounds are antigenic because they are derived from streptococci bacteria.

Natural streptokinase (SK) is isolated and purified from streptococci bacteria. Its lack of fibrin specificity makes it a less desirable thrombolytic drug than tPA compounds because it produces more fibrinogenolysis.
Anistreplase (Eminase®) is a complex of SK and plasminogen. It has more fibrin specificity and has a longer activity than natural SK; however, it causes considerable fibrinogenolysis.
Urokinase

Urokinase (Abbokinase®; UK) is sometimes referred to as urinary-type plasminogen activator (uPA) because it is formed by kidneys and is found in urine. It has limited clinical use because, like SK, it produces considerable fibrinogenolysis; however, it is used for pulmonary embolism. One benefit over SK is that UK is non-antigenic; however, this is offset by a much greater cost.