Q1: Which of the following is not true?

A) Morphine has been recognized to be effective analgesic.

B) Morphine is derived from the opium puppy, Papaver somniferum and P. album.

C) There are three families of endogenous opioid peptides: pentapeptide endorphins, enkephalins, and dynorphins.

D) Endogenous opioid peptides Can be released during stressful conditions such as pain or the anticipation of pain to diminish the sensation of noxious stimuli.

E) There are three types of opioid receptors: mu, delta, and kappa.

Answer: **(C)**

Q2: Which of the following is not true?

A) All three receptor subtypes mu, delta, kappa function in supraspinal and spinal analgesia.

B) Inhibition of respiration is a lethal adverse reaction of opioids acting on mu receptor.

C) Both mu and kappa receptors result in slowed emptying of the GIT.

D) Both mu and delta receptors result in modulation of hormone and neurotransmitter release.

E) Psychotomimetic effects are peculiar to delta receptors.

Answer: **(E)**

Q3: Which of the following is not true?

A) The appropriate equivalent dose of Morphine is 6-10mg.

B) The appropriate equivalent dose of Codeine is 20-30mg.

C) Fentanyl and Sufentanyl are very potent drugs used during anesthesia.

D) The appropriate equivalent dose of Meperidine is 60-100mg.

E) All of the above are true statements.

Answer: **(B)**

Q4: Which one of the following drugs is most effective when given orally?

A) Codeine.

B) Sufentanyl.

C) Meperidine.

D) Morphine.

E) Fentanyl.

Answer: **(A)**

Q5: Which of the following is not true?

A) Most opioid analgesics are well absorbed when given by subcutaneous, intramuscular, and oral routes.

B) Codeine undergoes extensive first-pass metabolism.

C) Opioids can be administered by nasal insufflations, oral lozenges and transdermally.

D) Opioids concentrate in highly perfused tissue such as brain, lung, liver, kidneys, and spleen.

E) Drug concentration in skeletal muscle is low, but it serves as a reservoir for the drug because of its large size.

Answer: **(B)**

Q6: Which one of the following drugs is most dangerous on patients with obesity?

A) Codeine.

B) Sufentanyl.

C) Meperidine.

D) Morphine.

E) Fentanyl.

Answer: **(E)**

Q7: Which of the following is not true?

A) Opioids are converted in large part to polar metabolites (mostly glucuronides), which are then readily excreted by the kidneys.

B) Morphine-3-glucuronide (M3G), has neuroexcitatory properties mediated by the mu receptors.

C) Morphine-6-glucuronide (M6G) has analgesic potency 4-6 times that of morphine.

D) Morphine metabolites are polar and have limited ability to cross the blood-brain barrier.

E) Probenecid or inhibitors of P-glycoprotein can enhance uptake of M3G and to a lesser extent M6G.

Answer: **(B)**

Q8: About Renal dysfunction adverse effects, choose the correct answer?

A) Accumulation of morphine metabolites in the body.

B) M3G-induced CNS excitation (seizures).

C) Enhanced and prolonged opioid action produced by M6G.

D) A+B

E) All of the above.

Answer: **(E)**

Q9: Which of the following drugs can cause CNS excitation when there metabolites are accumulated in the body?

A) Morphine.

B) Hydromorphone.

C) Pethidine.

D) A+B.

E) A+B+C

Answer: **(E)**

Q10: 45 year old patient with hepatic faliure came to the hospital with a severe pain in the lower limbs. Which of the following opioids will be given to the patient to relief his pain?

A) Meperidine.

B) Fentanyl.

C) Alfentanil.

D) Remifentanil.

E) Sufentanil.

Answer: **(D)**

Q11: Which of the following is not true?

A) Accumulation of the demethylated metabolite of meperidine (normeperidine) may occur in patients with renal dysfunction.

B) Fentanyl N-dealkylation is catalyzed by CYP3A4.

C) Codeine is metabolized by CYP3A4 to morphine.

D) Codeine CYP2D6 Extensive metabolizers might exhibit adverse effects including respiratory depression.

E) CYP3A4 isozyme is responsible for the metabolism of 50% of the drugs made available for metabolism in the body after their administration, this results in a tremendous amount of drug-drug interactions.

Answer: **(C)**

Q12: Which of the following is not true?

A) Opioid agonists produce analgesia by binding to 3 specific G protein-coupled receptors, located in the brain and the spinal cord regions involved in transmission and modulation of pain.

B) Opioid analgesics close voltage-gated Ca2+ channels on presynaptic nerve terminals to reduce transmitter release like substance P.

C) Opioid analgesics hyperpolarize and thus inhibit presynaptic neurons by opening K+ channels.

D) The primary afferent neuron synapse with the secondary neuron via glutamate and neuropeptide transmitters.

E) All of the above are true.

Answer: **(C)**

Q13: Action potentials reaching the dorsal horn can be attenuated at the presynaptic ending by which of the following mechanisms?

A) Calcium blockers (ziconotide).

B) α2 agonists.

C) Drugs that increase synaptic concentrations of norepinephrine by blocking reuptake (tapentadol)

D) Opioids acting at μ-opioid receptors (MOR).

E) All of the above

F) All of the above except D.

Answer: **(E)**

Q14: Which of the following is not true?

A) Opioids inhibit the postsynaptic neuron, as do certain neuropeptide antagonists acting at tachykinin (NK 1) and other neuropeptide receptors.

B) Analgesia and the euphoriant, respiratory depressant, and physical dependence properties of morphine result principally from actions at kappa receptors.

C) Compounds which show preference for kappa receptors (butorphanol, nalbuphine) can cause analgesia, dysphoria, and reduce respiratory depression and propensity for addiction and dependence.

D) Respiratory depression, nausea and vomiting, and sedation may occur from the spinal actions of systemically administered opioids.

E) More than one of the above.

Answer: **(E)**

Q15: About descending inhibitory pathway choose the wrong answer?

A) Rostral ventral medulla indirectly control pain transmission pathways by enhancing descending inhibition to the dorsal horn

B) The pain-inhibitory neuron is indirectly activated by exogenous or endogenous opioids.

C) Opioids inhibit an inhibitory (GABAergic) interneuron by reducing the probability of presynaptic neurotransmitter release.

D) The function of GABA interneurons are to inhibit the descending inhibitory neuron pathway.

E) Sites of action of opioids on pain modulating neurons in the midbrain and medulla include: the midbrain periaqueductal gray area, rostral ventral medulla, the locus caeruleus.

Answer: **(A)**