**TESTS FOR VIth YEAR STUDENTS**
**(Perioperative Medicine)**
**FOR THE 2020-2021 ACADEMIC YEAR**

**FACULTY OF MEDICINE No.2**

***Perioperative pain management tests for students (N.Belîi)***

1. **(SC) Which of the statements about the nociception is true?**
2. Pain and nociception are synonymous
3. Nociception is a multi-faceted experience generated by the brain
4. The neural process of enconding noxious stimuli
5. In nociception, processing of nerve signals is done by neural circuitry in the brain and nowhere else
6. Pain and nociception are the same processes

**Answer: c**

1. **(SC) Where are nociceptive nerve signals processed?**
2. The central nervous system and liver
3. The spinal cord and brain stem
4. The brain, brain stem and spinal cord
5. The extrapyramidal system
6. The central nervous system and gut

**Answer: c**

1. **(SC) Human preterm neonates:**
2. do not have a fully formed nociceptive system and that is why they can not sense noxious stimuli
3. do not have a fully formed nociceptive system but can sense noxious stimuli
4. have a fully formed nociceptive system but can not sense noxious stimuli
5. have a fully formed nociceptive system and can sense noxious stimuli
6. do not have a fully formed nociceptive system and that is why they cannot sense pain

**Answer: b**

1. **(SC) Which of the following analgesics would be most effective for the management of neuropathic pain:**
2. Morphine
3. Codeine
4. Fentanyl
5. Gabapentin
6. Paracetamol

**Answer: d**

1. **(MC) Pain is classified according to the time scale in:**
2. Acute
3. Malignant
4. Chronic
5. Nociceptive
6. Neuropathic

**Answers: a, c**

1. **(MC) Pain is classified according to the mechanism in:**
2. Nociceptive
3. Neuropathic
4. Mixt
5. Subacute
6. Chronic

**Answers: a, b, c**

1. **(SC) ”Allodynia” is:**
2. the pain caused by stimuli that are usually not painful
3. the”burning” sensation of causalgia
4. red flare with nerve damage
5. due to reflex sympathetic dystrophy
6. not associated with nerve damage

**Answer: a**

1. **(MC) C-ﬁbres are:**
2. non-myelinated and relatively thin neurones
3. convey information from high-threshold polymodal nociceptors which respond to chemical, mechanical and thermal stimuli
4. are responsible for the „second” or „slow” pain
5. of much larger diameter and are myelinated
6. 15% of C-ﬁbre nociceptors are „silent” and can become active under inﬂammatory conditions

**Answers: a, b, c, e**

1. **(SC) According to the International Association for the Study of Pain (IASP) workforce on taxonomy pain is:**
2. „pain that is present in a surgical patient after a procedure. Such pain may be the result of trauma from the procedure or procedure related complications”
3. “an unpleasant sensory or emotional experience associated with actual or potential tissue damage, or described in terms of such damage”
4. „pain initiated or caused by a primary lesion or dysfunction in the nervous system”
5. “pain of recent onset and probable limited duration. It usually has an identifiable temporal and causal relationship to injury or disease”
6. “the normal, predicted physiological response to an adverse chemical, thermal or mechanical stimulus….associated with surgery, trauma and acute illness”

**Answer: b**

1. **(MC) The temporal nature of pain symptoms is also commonly used to distinguish acute from chronic pain, with arbitrary chronological markers of how long (months), historically used as cut off points for the progression of acute to chronic pain?**
2. more than 2 months
3. more than 3 months
4. between 3 and 6 months
5. more than one month
6. more than 1,5 months

**Answer: b, c**

1. **(SC) All the following descriptions are applicable to pain, except:**
2. always subjective
3. always associated with actual tissue damage
4. a sensory and emotional experience
5. a primary reason patients seek medical advice
6. often undertreated

**Answer: b**

1. **(MC) We can think of nociceptive pain in terms of:**
2. stimulation
3. transmission
4. perception
5. modulation
6. Procrastination

**Answers: a, b, c, d**

**13. (SC) Neuropathic pain is:**

a. not distinctly different from nonciceptive pain

b. due in part to anatomic and biochemical changes in the nervous system

c. seen immediately after most traumatic injuries

d. is sustained by the normal processing of sensory input by the peripheral or central nervous system

e. none of the above

**Answer: b**

**14. (SC) When evaluating the pain of a 50-year-old woman who has just had her gallbladder removed, the most important characteristic to consider when assessing her immediate postoperative pain would be:**

a. the history of past surgeries

b. the time elapsed since the patient was in surgery

c. pain severity

d. the amount of tissue damage

e. the amount of time spent in surgery

**Answer: c**

1. **(SC) The following drug would be preferred when treating acute mild pain in a 30-year-old man with no significant medical history and on no medications:**
2. nalbuphine
3. propoxyphene
4. codeine with acetaminophe
5. acetaminophen
6. tramadol

**Answer: d**

**16. (SC) Therapeutic doses of morphine given to patients with severe pain will cause:**

1. blood pressure to drop
2. respiratory depression
3. a decrease in myocardial oxygen demand in myocardial ischemia
4. an increase in the propulsive contractions of the gastrointestinal tract
5. urinary incontinence

**Answer: c**

**17. (SC) Choose the drug(s) of choice in severe acute pain secondary to trauma:**

1. morphine plus a nonsteroidal anti-inflammatory drug
2. morphine alone
3. meperidine alone
4. meperidine plus promethazine
5. pentazocine plus a nonsteroidal anti-inflammatory drug

**Answer: a**

**18. (SC) The only indication for the use of an opioid analgesic on an "as needed" basis is when:**

1. the patient is over 75 years old
2. the patient is depressed
3. the analgesic is used to treat breakthrough pain
4. the analgesic is administered epidurally
5. the patient is experiencing constipation

**Answer: c**

**19. (MC) When treating moderate to severe cancer pain:**

1. assess the frequency/duration/occurrence/etiology of the pain
2. use sustained-release opioid in an around-the-clock fashion
3. use immediate-release opioids with the sustained-release drugs
4. titrate opioids based on the response of the patient
5. avoid opioids and apply the principle ”no pain, no gain”

**Answers: a, b, c, d**

**20. (SC) The best treatment of opioid-induced constipation is:**

1. prevention with the proper intake of fluids and fiber
2. prevention by using propoxyphene
3. concomitant use of acetaminophen with the opioid
4. concomitant use of aspirin
5. all of the above

**Answer: a**

**21. (SC) Nonpharmacologic therapies:**

1. should be considered only in chronic nonmalignant pain
2. often are underused in acute pain
3. can detract from pharmacologic treatment in cancer patients
4. can induce a number of opioid-like side effects
5. none of the above

**Answer: b**

**22. (SC) When tramadol is being considered to treat neuropathic pain, which of the following may prevent the clinician from starting this agent?**

1. drug interactions with capsaicins
2. history of diabetes
3. history of gastrointestinal bleeding
4. drug interactions with the nonsteroidal anti-inflammatory drugs
5. none of the above

**Answer: e**

**23. (SC) When treating bone pain associated with breast cancer, the best therapy would be:**

1. ibuprofen plus amitriptyline
2. ibuprofen plus sustained-release opioids
3. ibuprofen plus immediate-release opioids
4. ibuprofen plus amitriptyline plus sustained-release opioids
5. amitriptyline plus sustained-release opioids

**Answer: b**

**24. (SC) Which of the following is an appropriate pain management?**

1. ibuprofen alone to treat acute severe pain
2. tricyclic antidepressants to treat acute pain
3. morphine dose titration in severe pain
4. the use of a placebo to diagnosis pain
5. all of the above

**Answer: c**

**25. (SC) Neuropathic pain is deﬁned by the International Association for the Study of Pain (IASP) as:**

1. ”pain that is present in a surgical patient after a procedure. Such pain may be the result of trauma from the procedure or procedure related complications”
2. ”an unpleasant sensory or emotional experience associated with actual or potential tissue damage, or described in terms of such damage”
3. ”pain initiated or caused by a primary lesion or dysfunction in the nervous system”
4. “pain of recent onset and probable limited duration. It usually has an identifiable temporal and causal relationship to injury or disease”
5. “the normal, predicted physiological response to an adverse chemical, thermal or mechanical stimulus….associated with surgery, trauma and acute illness”

**Answer: c**

**26. (MC) Deep-tissue nociceptors are located in:**

1. the deep structures such as joints, bones, muscles and viscera
2. compared to cutaneous receptors, their receptive ﬁelds are much larger
3. compared to cutaneous receptors, their receptive ﬁelds are less larger
4. pain experienced is more diffuse in nature
5. visceral pain can also be referred to distant parts of the body

**Answers: a, b, d, e**

**27. (MC) A-ﬁbres differ grossly from C-ﬁbres in that they are:**

1. of much larger diameter and are myelinated
2. faster conduction velocities
3. have a low threshold for activation
4. non-myelinated and relatively thin neurones
5. responsible for the „ﬁrst” or „fast” pain that occurs following injury

**Answer: a, b, c, e**

**28. (MC) The degree of activation of nociceptors in a dynamic state is dependent on the degree of tissue injury and modulatory factors. For example, in areas of overt trauma or inﬂammation:**

1. nociceptor activity is heightened
2. the threshold for nociceptor excitation and action potential generation is reduced
3. the threshold for nociceptor excitation and action potential generation is increased
4. nociceptors are excited both in greater numbers and at a greater frequency for a given degree of stimulation
5. nociceptor activity is depressed

**Answers: a, b, d**

**29*.* (SC) The reduced threshold for mechanical and thermal stimuli in the area of damage, which manifests as tenderness and ongoing pain, is called:**

1. primary hyperalgesia
2. secondary hiperalgesia
3. inflammatory soup
4. central sensitisation
5. peripheral sensitisation

**Answer: a**

**30. (SC) When the reduced threshold extends beyond the area of damage (usually only to mechanical stimuli) and affects undamaged tissue, it is known as:**

1. primary hyperalgesia
2. secondary hyperalgesia
3. inflammatory soup
4. central sensitisation
5. peripheral sensitisation

**Answer: b**

**31. (MC) Speaking of ascending pain pathways, the cell body of the ﬁrst-order neurone (primary afferent neurone):**

1. lies within the dorsal root
2. is called the dorsal root ganglion
3. a neurone projects from this cell body to the periphery and another projects to the dorsal horn where it synapses with a second-order neurone
4. synapses once more either in the midbrain or in the thalamus on a third-orderneurone
5. its ﬁbres pass via the reticular formation, medial thalamic nuclei, and onto the secondary sensory cortex

**Answers: a, b, c**

**32. (MC) Speaking of ascending pain pathways, the second-order neurones:**

1. decussate to the contralateral side of the spinal cord
2. remains always on the same part of the spinal cord
3. ascend in one of two main pathways/ tracts
4. depending on the ascending pathway, the second-order neurone synapses once more either in the midbrain or in the thalamus on a third-order neurone
5. all of them convey the exact location and the discriminatory quality of the painful stimulus

 **Answers: a, c, d**

**33. (MC) Speaking of ascending pain pathways (the second-order neurones), spinothalamic tract:**

1. its ﬁbres are highly organized spinorecticulodiencephalic tract spinorecticulodiencefalic tract
2. in comparison with spinorecticulodiencephalic tract, is considered phylogenetically advanced
3. in comparison with spinorecticulodiencefalic tract, is considered phylogenetically ”old”
4. is responsible for the localization of pain
5. conveys the exact location and the discriminatory quality of the painful stimulus

**Answers: a, b, d, e**

**34. (MC) Speaking of ascending pain pathways (the second-order neurones), spinoreticulodiencephalic tract:**

1. is primarily involved in the affective component of pain perception
2. is considered phylogenetically ”older” in comparison with the spinothalamic tract
3. is responsible for the localisation of pain
4. is considered phylogenetically advanced in comparison with spinothalamic tract
5. convey the sensation that something is „painful”

**Answers: a, b, e**

**35. (MC) ”Gate control” theory:**

1. was postulated by Ron Melzack and Pat Wall in 1965
2. stipulates that stimulation of A-β ﬁbres in the painful area activates the inhibitory interneurones and close the gate to C-ﬁbre transmission
3. it explains the phenomenon of „rubbing it better”, as fast A-β touch ﬁbres are stimulated and block (wide dynamic range neurones) neuronal transmission of the slower C-ﬁbre input
4. postulates that perception of pain is not inﬂuenced by the pattern of neuronal activity
5. is also the principle behind transcutaneous electrical nerve stimulation (TENS), which utilises high-frequency, low-amplitude current to stimulate large peripheral A-β ﬁbres

**Answers: a, b, c, e**

**36. (MC) The cardiovascular system responds to the stress of unrelieved pain by:**

1. increasing sympathetic nervous system activity
2. increased heart rate, blood pressure and peripheral vascular resistance
3. decrease sympathetic nervous system activity
4. increases the oxygen consumption of the myocardium
5. decreased heart rate, blood pressure and peripheral vascular resistance

**Answers: a, b, d, e**

**37. (MC) The gastrointestinal tract responds to the stress of unrelieved pain by:**

1. delay in gastric emptying
2. accelerated gastric emptying
3. reduced bowel motility
4. increased bowel motility
5. the potential for the development of paralytic ileus

**Answer: a, c, e**

**38. (MC) Speaking of the respiratory system, unrelieved pain can lead to:**

1. limiting the movement of the thoracic and abdominal muscles in a bid to reduce pain
2. increasing in vital lung capacity, decreased inspiratory and expiratory pressures and increased alveolar ventilation
3. secretions and sputum being retained because of a reluctance to cough
4. pneumothorax
5. reduction in vital lung capacity, increased inspiratory and expiratory pressures and reduced alveolar ventilation

**Answers: a, c, e**

**39. (MC) Unrelieved pain can cause:**

1. low levels of cortisol
2. depression of the immune system
3. predispose the patient to wound infection
4. an adaptive response to stress that, if lasts for long, is beneficial
5. some degree of respiratory dysfunction

**Answers: b, c, e**

**40. (MC) What is the most reliable indicator of pain experience?**

1. observation by another person
2. the nature of pain is subjective
3. the patient’s self-report of pain
4. observation by not less than 2 persons
5. evaluation of vital signs

**Answers: b, c**

**41. (MC) Unilateral pain-rating scales are:**

1. the verbal rating scale
2. the numerical rating scale
3. the Brief Pain Inventory
4. the visual analogue scale
5. faces of pain scale

**Answers: a, b, d, e**

**42. (MC) Disadvantages of unilateral pain rating scales are:**

1. complicated in use
2. it takes too long to assess the pain
3. focus primarily on the intensity of pain
4. fail to take account of the context of pain
5. fail to take account of important factors such as: location, quality, duration, emotional impact and type pain

**Answers: c, d, e**

**43. (MC) Increasingly, patients admitted to hospital have an underlying chronic pain condition for which they are already receiving treatment. What should be taken into account to assess pain in such patients?**

1. unilateral pain-rating scales are suitable for such cases
2. is necessary to develop some understanding of their previous pain experience
3. is necessary to develop some understanding of their previous pain treatment
4. not to neglect their present acute pain episode
5. just self-evaluation of the present ongoing pain intensity

**Answers: b, c, d**

**44. (MC) Increasingly, patients admitted to hospital have an underlying chronic pain condition for which they are already receiving treatment. In order of pain assessment, what to take into account for such patients?**

1. pain location, pain intensity
2. just unilateral self-report of pain intensity
3. pain quality, pain duration
4. just acute pain at the moment of admission
5. things that may exacerbate or reduce pain

**Answers: a, c, e**

**45. (MC) Which of the following may be signiﬁcant in pain assessment when caring for cognitively impaired patients across the age spectrum?**

1. a unilateral approach to pain assessment
2. cognitive changes
3. behavioural changes
4. focus primarily on the intensity of pain
5. they do not feel pain

**Answers: b, c**

**46. (SC) Choose the multidimensional pain scale:**

1. the visual analogue scale
2. the numerical rating scale
3. the Brief Pain Inventory
4. the verbal rating scale
5. the faces of pain scale

**Answer: c**

**47. (MC) The evidence suggests that older people can report pain as accurately as their younger counterparts. Nevertheless, for patients with mild cognitive impairment, it may be necessary to:**

1. consider adopting words other than pain in order to elicit for thright response (e.g. ache or discomfort)
2. cognitively impaired patients do not feel pain at all
3. clearly ask if they have pain at present and how big a problem it is
4. give them sufﬁcient time to answer
5. the principles for assessing pain in patients with severe dementia are the same as those for a person with no memory problems

**Answers: a, c, d**

**48. (MC) Patient Controlled Analgesia (PCA) is:**

1. another name for titration of intravenous opioids
2. a method of pain relief, where the patient can decide (within a preset frame) how much drug they receive
3. intramuscular opioid injections for pain relief at home
4. a method when patients can maintain the opioid blood level by topping themselves up with doses requested from the PCA machine, thus keeping themselves in what is known as the „analgesic corridor”
5. oral opioids administration at home

**Answers: b, d**

**49. (MC) The important considerations in the patient’s election for Patient Controlled Analgesia (PCA) are:**

1. the willingness of the patient to administer their own analgesia
2. patients understand the concept of PCA
3. the patient is not confused and has no language difﬁculties
4. patients must be physically able to press the button
5. it is the method of first choise for analgesia of patients with stroke, arthritis or trauma to the hands

 **Answers: a, b, c, d**

**50. (MC) The loading dose*,*with regard to the Patient Controlled Analgesia (PCA), is:**

1. the amount of drug given to the patient to ensure that their pain is controlled, prior to starting PCA
2. the amount of drug that the patient receives when they press the button
3. the amount of time that it takes to deliver the bolus dose
4. patients are loaded with opioid, until the minimum effective analgesic concentration in the blood is achieved, which means that the patient’s pain is controlled with minimal side effects
5. the minimal time interval before another bolus dose can be requested

**Answers: a, d**

**51. (MC) The following statements about bolus dose are true with regard to the Patient Controlled Analgesia (PCA):**

1. the amount of drug given to the patient to ensure that their pain is controlled, prior to starting PCA
2. the amount of drug that the patient receives when they press the button
3. the amount of time that it takes to deliver the bolus dose
4. for most patients this is usually 1 mg of morphine
5. is the minimal time interval before another bolus dose can be requested

**Answers: b, d**

**52. (SC) The dose duration, with regard to thePatient Controlled Analgesia (PCA), is:**

1. the amount of drug given to the patient to ensure that their pain is controlled, prior to starting PCA
2. the amount of drug that the patient receives when they press the button
3. the amount of time that it takes to deliver the bolus dose
4. for most patients this is usually 1 mg of morphine
5. the minimal time interval before another bolus dose can be requested

**Answer: c**

**53. (MC) The following statements about *lockout interval* are true, with regard to the Patient Controlled Analgesia (PCA):**

1. it does limit the total amount of drug that the patient can request
2. it is a method of preventing overdose
3. the main purpose of this interval is to allow time for the drug to start to work
4. the amount of time that it takes to deliver the bolus dose
5. it is the minimal time interval before another bolus dose can be requested

**Answers: a, c, e**

**54. (MC) The following statements about background infusionare true, with regard to the Patient Controlled Analgesia (PCA):**

1. it is useful in patients who are receiving long-term opioids prior to surgery
2. it may be indicated in patients who have malignant disease, sickle-cell disease or are IV drug misusers
3. it will limit the amount of drug that patients can request over the 1st or 4th period
4. it is a method of preventing overdose
5. it is the minimal time interval before another bolus dose can be requested

**Answers: a, b**

**55. (MC) There are patients who take long-term opioid medications for chronic painful conditions, such as arthritis. The reason for surgery may have nothing to do with their long-term opioid usage. The following statements are true for such patients:**

1. after surgery, they will still need their medication for arthritic pain, but will also require additional analgesia for surgical pain
2. postoperative pain management according to the general scheme
3. these patients will have tolerance to opioids and will therefore require larger doses
4. these patients will have tolerance to opioids and will therefore require lower doses
5. it is useful to have a system of converting patients from their normal dose of opioid to an appropriate PCA programme that will account for their situation

**Answers: a, c, e**

**56. (MC) Patient Controlled Analgesia (PCA) should be discontinued and patients stepped down to oral analgesia only when the following criteria are met:**

1. the patient should have an oral route
2. the patient should have no more than mild pain on movement
3. the patient should have used less than 30 mg of intravenous morphine or equivalents in the past 24 hr
4. intramuscular or subcutaneous injections available
5. the patient has less than severe pain on movement

**Answers: a, b, c**

**57. (MC) The following statements regarding pain in paediatric patient are true:**

1. begining with the 26th week of gestation higher cortical processes are already involved in the perception of pain
2. premature infants do not feel pain
3. neonates do not feel pain, because analgesic pathways are anatomically and functionally different
4. inhibitory descendent pain pathways are not developed yet
5. experience of pain in early life may lead to long-term behavioural changes and/or the development of chronic or neuropathic pain

**Answers: a, d, e**

**58. (MC) The following statements regarding pain in infants are true:**

1. begining with the 26th week of gestation higher cortical process are already involved in the perception of pain
2. they will not remember the experience of pain in early life, so it has no consequences
3. inhibitory descendent pain pathways are not yet developed
4. premature infants do not feel pain
5. myelination process will continue up to the age of 2.

**Answers: a, c, e**

**59. (MC) The following concerns regarding pharmacological pain management in neonates and infants are true:**

1. reduced muscle blood ﬂow and poor contraction delays intramuscular absorption
2. high extracellular ﬂuid volume and total body water lead to rapid onset of drug effects
3. low extracellular ﬂuid volume and total body water lead to slow onset of drug effects
4. immature oxidation and glucuronidation leads to variably prolonged half-life of analgesics, including opioids and paracetamol
5. immature renal function and reduced glomerular ﬁltration rate leads to reduced clearance

**Answers: a, b, d, e**

**60. (MC) The following statements are true about CRIES pain assessment tool:**

1. is an acronym based on physiological and behavioural variables
2. it has 3 variables to be assesed
3. it has 5 variables to be assesed
4. used in neonates and infants
5. the letters stand for: C – crying, R – requires increased oxygen administration, I – increased vital signs, E – expression, S – sleeplessness

**Answers: a, c, d, e**

**61. (MC) The following statements about CRIES pain assessment tool are true:**

1. it is an acronym based on patient self-report characteristics of pain
2. it is an observational tool
3. it has 5 variables to be assessed
4. it is used in neonates and infants
5. the letters stand for: C – child verbal, R – requires more analgesics, I – intensity of pain, E – expression, S – sounds

**Answer: b, c, d**

**62. (MC) Providing good pain relief in children:**

1. requires a pre-emptive, pro-active, preventive approach
2. the intramuscular route should be avoided
3. use rectal or oral routes of analgesics administration; intravenous or subcutaneous in-dwelling cannulae if needed
4. topical local anaesthetic creams (EMLA, Ametop) should be used prior to painful needle procedures
5. they will not remember the experience of pain in early life, so it has no consequences

**Answers: a, b, c, d**

**63. (MC) The following statements about pain management in children are true:**

1. they will not remember the experience of pain in early life, so it has no consequences
2. previous pain experience will inﬂuence older children
3. children who have undergone multiple painful procedures and surgery may be highly sensitised and have very low pain thresholds
4. the faces scale consisting of a series of faces in varying degrees of discomfort is useful in those over the age of 4.
5. the numerical rating scale is used for toddlers

**Answers: b, c, d**

**64. (MC) Paracetamol is:**

1. a mild non-opioid analgesic with a synergistic effect when used with other pain medication
2. it is a minor opioid
3. it is predominantly metabolized in the liver by glucuronidation or sulphation
4. a small amount is metabolized by the cytochrome P450 enzyme system to the potentially hepatotoxic metabolite N-acetyl-p-amino-benzoquinone imine (NAPQI)
5. in those with liver disease, it may be used in normal doses

**Answers: a, c, d**

**65. (MC) The following statements about NSAIDs are true:**

1. provide effective analgesia for moderate postoperative pain
2. first line pain treatment in patients with asthma
3. have an opioid-sparing effect
4. inhibit cyclooxygenase, which reduces prostaglandin-mediated peripheral nociception
5. side effects include platelet dysfunction, gastrointestinal bleeding, renal dysfunction and exacerbation of asthma

**Answer: a, c, d, e**

**66. (MC) NSAIDs should be avoided in children with:**

1. renal dysfunction
2. liver disease
3. severe asthma
4. craniofacial syndromes
5. those at risk of signiﬁcant bleeding

**Answers: a, b, c, e**

**67. (MC) The following statements about tramadol with regard to drug interactions between analgesics and medication used for postoperative nausea and vomiting preventing in infants and toddlers, are true:**

1. it is not to be combined with dexamethasone
2. it is not to be combined with ondansetron
3. it is not to be combined with metoclopramide
4. it is not to be combined with paracetamol
5. it is not to be combined with ibuprofen

**Answers: b, c**

**68. (MC) The elderly population represents a particular challenge in acute pain management because of:**

1. the cardiac output declines by 1% per year from the age of 30
2. the glomerular filtration rate declines by 1.0–1.5% per year from the age of 20
3. the hepatic function is maintained despite a reduction in liver blood ﬂow and a reduction in liver bulk
4. the hepatic function usually decreases
5. the neurological function may be altered

**Answer: a, b, c, e**

**69. (MC) The elderly population represents a particular challenge in acute pain management because of:**

1. a reduction in renal clearance of drugs
2. a reduction in prostaglandins in the gastric mucosa
3. increased prostaglandins in the gastric mucosa
4. a general trend for reduction of sympathetic tone, autonomic function generally and C- and Aδ-ﬁbre deterioration
5. a general trend for increased sympathetic tone, autonomic function generally and C- an Aδ-ﬁbre deterioration

**Answers: a, b, d**

**70. (MC) With advancing age, in the nervous system, there is a general trend for reduction of sympathetic tone, autonomic function generally and C- and Aδ-ﬁbre deterioration. This results in:**

1. an exaggerated hypotensive response to epidural and spinal analgesia
2. a paradoxal hypertensive response to epidural and spinal analgesia
3. a slower response to painful stimuli
4. reduction in pain intensities and necessity to treat pain
5. a faster response to painful stimuli

**Answers: a, c**

**71. (MC) The reasons why elderly people tend to demonstrate more side effects of analgesic medication are:**

1. they have less muscle mass, their ratio of muscle to fat is altered and so lipophilic drugs may have a prolonged action
2. less total body water, so water-soluble drugs (morphine) may achieve higher than normal plasma levels
3. more total body water, so water-soluble drugs (fentanyl) may achieve lower than normal plasma concentrations
4. in chronically undernourished, serum albumin may be low, allowing high levels of free drug for those drugs that are normally highly protein bound
5. hyperproteinemia, high protein binding and necessity for higher doses

**Answers: a, b, d**

**72. (MC) Paracetamol is commonly used in the elderly because:**

1. hepatic function is well preserved in older people and they are at risk only if they have speciﬁc liver disease
2. it is very effective only when given intravenously
3. it is of particular value in this group, because it has very few interactions with other drugs
4. it can be used in patients with hepatic failure
5. many elederly patients are taking multiple medicines for cardiac and other morbidities

**Answer: a, c, e**

**73. (MC) The following statements about tramadol are true:**

1. it has a mixed action, binding to opioid receptors and to 5 hydroxytryptamine (5-HT) receptors
2. it is highly bound to plasma protein drug (56%)
3. it is poorly bound to plasma proteins (20%)
4. indicated for the management of moderate to moderately severe pain
5. caution in patients with a creatinine clearance less than 30 mL/min

**Answers: a, c, d, e**

**74. ( MC) The major concerns linked with opioid prescribing in elderly are:**

1. the higher incidence of side effects in this group
2. low tolerance (due to high populations of receptors)
3. high tolerance (due to smaller populations of receptors)
4. first line pain therapy in patients where renal impairment is present
5. renal function should be assessed before prescribing

**Answers: a, c, e**

**75. (MC) Non-steroid anti-inflammatory drugs (NSAIDs) should be used with caution in the elderly because of:**

1. the reduction in prostaglandin production in the gastric mucosa, which will further reduce the prostaglandin protection
2. the increased prostaglandin production in the gastric mucosa, which will further interfere with the protection processes
3. acute gastrointestinal haemorrhage with no preceding pain or dyspepsia can occur
4. proton pump inhibitors may be protective, but they can also mask symptoms relating to mucosal damage
5. Dose reduction is not required in patients with liver disease, as most NSAIDs are not metabolized by the liver

**Answers: a, c, d**

**76. (MC) Non-steroid anti-inflammatory drugs (NSAIDs) should be used with caution in the elderly because:**

1. renal blood ﬂow is maintained by prostaglandins and falls when NSAIDs are given
2. renal blood flow increases when NSAIDs are given
3. renal sodium reabsorption increases in the presence of NSAIDs
4. they increase water retention and can contribute to precipitation of heart failure
5. platelet dysfunction occurs and may be signiﬁcant if the patient is already receiving aspirin or anticoagulants

**Answers: a, c, d, e**

**77. (MC) The following statements about patients suspected or known missuser are true:**

1. the aim of substituting with a safe alternative is reduction of harm to the patient and society
2. opioid tolerance excludes the possibility of methadone overdose
3. opioid tolerance does not eliminate the possibility of methadone overdose, iatrogenic orotherwise
4. they are already on opioids, so necessitate lower doses for acute pain relief
5. psychological support is essential for long-term success

**Answers: a, c, e**

**78. (MC) The following statements about naltrexone are true:**

1. it is an opioid receptor antagonist
2. it is an opioid receptor partial agonist
3. it is used for abstinence therapy for alcohol and opioids
4. in emergencies, such as cases of acute severe pain, higher doses of opioid analgesics may be used with extreme caution to override the blockade produced by naltrexone
5. the narcotic dose titrated to achieve adequate pain relief in patients receiving naltrexone has no risk of oversedation or respiratory suppression

**Answers: a, c, d**

**79. (MC) Choose the true statements about pain relief in opioid-dependent patients:**

1. opioid-naive patients use more morphine postoperatively than opioid-dependent patients
2. it is considered to be difﬁcult and challenging
3. such patients use signiﬁcantly more morphine postoperatively than opioid-naive patients
4. reported postoperative pain scores are higher
5. reported postoperative pain scores are lower

**Answers: b, c, d**

**80. (MC) The following statements about switching the opioid, ”opioid rotation” are true:**

1. it allows the metabolites to be eliminated while maintaining analgesia with a strong opioid
2. this strategy can be particularly useful when the toxicity is severe and/ or pain is not well controlled
3. switching the opioid requires the use of equianalgesic doses
4. switching the opioid does not require the use of equianalgesic doses
5. there is no sound evidence to suggest superiority of one opioid over another

**Answers: a, b, c, e**

**81. (MC) The following statements about patients on chronic opioid therapy are true:**

1. they often have a background of chronic illness or malignancy
2. all opioids should be withdrawn before surgery
3. the general practitioner, palliative care practitioner or pain management consultant will be able to conﬁrm opioid medication on admission for surgery
4. the main goal for treating acute pain in opioid-dependent patients is satisfactory pain relief, prevention of withdrawal and provision of psychological support
5. if regional blockade or local anaesthetic limb blocks are used, there is no need in opioid medication

**Answers: a, c, d**

**82. (MC) Speaking of pain relief in opioid-dependent patients, the withdrawal clinical syndrome is produced by:**

1. rapid intravenous administration of opioids for pain relief
2. cessation of the opioid drug in an opioid-dependent individual
3. administration of an opioid antagonist to an opioid-dependent individual
4. administration of naltrexone or nalorphine to an opioid-dependent individual
5. intravenous opioid titration combined with NSAIDs to an opioid-dependent individual

**Answers: b, c, d**

**83. (SC) Speaking of pain relief in opioid-dependent patients, after administration of an opioid antagonist, the opioid withdrawal initial signs and symptoms may develop:**

1. up to 24 hours after
2. immediately after the administration of an opioid antagonist
3. up to 48 hr after
4. the time depends on the half-life of the opioid
5. the time depends on the half-life of the opioid antagonist

**Answer: b**

**84. (MC) Speaking of pain relief in opioid-dependent patients, after cessation or reduction in dosage of the opioid, the opioid withdrawal initial signs and symptoms may develop:**

1. up to 24 hours after
2. immediately after the administration of an opioid antagonist
3. up to 48 hr after
4. the time depends on the half-life of the opioid
5. the time depends on the half-life of the opioid antagonist

**Answers: c, d**

**85. (MC) Speaking of pain relief in opioid-dependent patients, the withdrawal of morphine has:**

1. an onset at about 12 hr after the last dose
2. immediately after the cessation
3. up to 48 hr after
4. peaks within 48–72 hr
5. resolves over a period of days

**Answers: a, d, e**

**86. (MC) Speaking of pain relief in opioid-dependent patients, the withdrawal syndrome produced by administration of naloxone:**

1. occurs up to 12 hr after administration
2. occurs within 5 min
3. peaks at approximately 30 min
4. subsides within 2 hr
5. psychological support is essential for long-term success

**Answers: b, c, d, e**

**87. (MC) Choose the true statements about pain relief in patient with renal dysfunction:**

1. renal dysfunction leads to reduced clearance of drugs and their metabolites
2. renal dysfunction leads to accumulation of drugs and their metabolites in the body
3. the accumulated drugs and metabolites may have a prolonged action and increased incidence of side effects
4. in mild to moderate renal function impairment, drugs dependent on renal excretion may be used in normal doses
5. only in severe renal impairment, drugs dependent on renal excretion should be used in reduced doses

 **Answers: a, b, c**

**88. (MC) Choose the true statements about pain relief in patient with renal dysfunction:**

1. in mild to moderate renal function impairment, drugs dependent on renal excretion may be used in reduced doses
2. in severe renal function impairment drugs dependent on renal excretion should be avoided
3. NSAIDs are not likely to be affected by this.
4. in acute kidney injury, morphine and its active metabolites will accumulate
5. in acute kidney injury is important to use an opioid that does not have active metabolites (such as oxycodone)

**Answer: a, b, d, e**

**89. (MC) Choose the true statements about NSAIDs for pain relief in patient in which renal function deteriorates:**

1. prostaglandins will accumulate in the blood
2. urea will accumulate in the blood
3. the acumulated urea alters the degree of protein binding
4. the acumulated prostaglandins alter the degree of protein binding
5. increasing the fraction of drug available in the plasma and side effects for a given drug dosage

**Answers: b, c, e**

**90. (MC) Speaking about speciﬁc analgesic drugs in renal failure, paracetamol is:**

1. the drug of choice for simple analgesia in renal failure
2. the drug to be avoided for analgesia in renal failure
3. it can very rarely cause nephropathy in very high doses
4. it can often cause nephropathy even in very low doses
5. it is not dependent on renal clearance and can be used safely

**Answers: a, c, e**

**91. (MC) Speaking about speciﬁc analgesic drugs in renal failure, NSAIDs are:**

1. generally avoided in patients with renal dysfunction
2. generally indicated in patients with renal dysfunction
3. they reduce renal blood ﬂow and alter sodium balance
4. they do not influence renal blood flow or sodium balance
5. indicated especially in case of hypovolaemia

**Answer: a, c**

**92. (MC) Choose the true statements about pain relief with opioid drugs in renal failure:**

1. codeine and dihydrocodeine should be avoided as they are metabolised to morphine, which may accumulate
2. codeine and dihydrocodeine are the most indicated as do not have active metabolites and have relatively short half-lives
3. morphine and its metabolite morphine 3-glucuronide and morphine 6-glucuronide will accumulate in patients with renal impairment
4. fentanyl and oxycodone should be avoided as they are metabolised to morphine, which may accumulate
5. fentanyl and oxycodone are recommended for use in patients with renal dysfunction, as they do not have active metabolites and have relatively short half-lives

**Answers: a, c, e**

**93. (MC) The following opioid drugs are recommended for the use in patients with renal dysfunction:**

1. codeine
2. dihydrocodeine
3. morphine
4. fentanyl
5. oxycodone

**Answers: d, e**

**94. (MC) Speaking about speciﬁc analgesic drugs in renal failure, tramadol is:**

1. metabolized in the liver
2. metabolized in plasma
3. metabolites are dependent on renal excretion
4. it is recommended an increased dosing interval of 12 hr in renal dysfunction as a precaution
5. none of the tramadol’s metabolites are active

**Answers: a, c, d, e**

**95. (MC) The true statements about pain relief in patients of day-case surgery settings are:**

1. analgesia is not necessary for patients of day-case surgery
2. almost half of patients do not take their analgesia regularly as instructed after leaving the day surgery unit
3. they report always mild or no pain after their day-case surgery
4. the pain is worse on the second postoperative day, when they start to mobilise
5. the education of the patient about how to take their analgesic drugs is almost as important as the choice of drugs

**Answers: b, d, e**

**96. (MC) The following statements about pain relief in patients with acute neuropathic pain are true:**

1. usualy they require strong opioids
2. often pain is resistant to conventional analgesic approaches (rebel to opioids)
3. it tends to be managed with entirely different types of medications, designed to act as pharmacological modulators of nerve pain
4. it tends to be managed with analgesics such as paracetamol, non-steroidal anti-inflammatory drugs (NSAIDs) and weak or strong opioids (according to WHO analgesic ladder)
5. mechanisms include direct nerve injury (including by mechanisms other than obvious nerve trauma)

**Answers: b, c, e**

**97. (MC) The following statements about pain relief in patients with acute neuropathic pain are true:**

1. the pain may seem to be more severe than is normally experienced
2. often is resistant to conventional analgesic approaches (rebel to opioids)
3. can be contrelled with analgesics such as paracetamol, non-steroidal anti-inflammatory drugs (NSAIDs) and weak or strong opioids (according to WHO analgesic ladder)
4. the most commonly used classes of drugs for neuropathic pain are the antidepressants and the anticonvulsants
5. the pain may persist for longer than would be expected following otherwise uncomplicated surgery

**Answers: a, b, d, e**

**98. (SC) Which statement regarding the use of opioids for the management of acute pain is true?**

1. in adult patient weight is the best predictor of opioid requirements
2. metabolism to codeine-6-glucuronide produces the analgesic effect of codeine
3. morphine produces more nausea and vomiting than pethidine
4. pethidine is superior to morphine in the management of renal colic pain
5. tramadol has a lower risk of respiratory depression than other opioids at equianalgesic doses

**Answer: e**

1. **(SC) When used for the treatment of neuropathic pain, the dose of gabapentin should be modified if the patient:**
2. has impaired hepatic function
3. has impaired renal function
4. is also receiving amitriptyline
5. is also receiving fentanyl transdermally
6. is also receiving a proton-pump inhibitor

**Answer: b**

**100. (SC) Analgesic requirements during labour are reduced by each of the following except:**

a. Acupressure

b. Acupuncture

c. TENS

d. One to one support by midwife

e. Hypnosis

**Answer: a**

Preoperative evaluation and risk assessment in patients undergoing surgery. (S.Plămădeală)

1. **(MC) The preoperative evaluation reduces:**
2. risk of pulmonary complications in perioperative period
3. risk wound infection
4. lenght of stay in ICU
5. duration of surgery
6. length of mechanical ventilation

**Answers: a, b, c, e**

1. **(MC) The preoperative evaluation reduces:**
2. risk of cardiac complication
3. doses of anesthetic drugs
4. volume of blood products transfused in perioperative period
5. lenght of stay in ICU
6. doses of painkiller drugs

Answer: a, c, d

1. **(MC) The preoperative evaluation reduces:**
2. risk of wound infection
3. need of blood transfusion in perioperative period
4. lenght of stay before the day of surgery
5. rate of general anesthesia
6. length of prophylactic administration of antibiotics

**Answers: a, b, c, e**

1. **(MC) The preoperative evaluation reduces:**
2. chance to fail the weaning of patient from ventilator
3. doses of LMWH in postoperative period
4. volume of intraoperative blood loss
5. amount of money spent for treatment
6. volume of administered intravenously solution

**Answers: a, d**

1. **(MC) Concerning METs**
2. one MET represent the oxygen consumption of a resting adult
3. in patient unable to perform 4 METs cardiac perioperative risk is low
4. are used to quantify functional capacity
5. resting oxygen consumption of an adult is approximately 5 ml/kg/min
6. in patient unable to perform 4 METs cardiac perioperative risk is high

**Answers: a, c, e**

1. **(MC) Concerning METs**
2. patient with 1 MET is able to take care of himself
3. functional capacity of a patient with 5 MET is limited to walk around the house
4. functional capacity of a patient able to ride a bike exceed 10 METs
5. 5-9 METs correspond to a patient able to dance and play golf
6. the best functional capacity is quantified with more than 10 METs

**Answers: a, c, d, e**

1. **(MC) Concerning BMI**
2. represent the ratio between body mass and body weight
3. range between 18.5 and 25 in case of normal weight person
4. is expressed in kg/m2
5. is a value derived from the weight and height?
6. for obese patient the value should be at least 35

**Answers: c, d, e**

1. **(MC) Concerning BMI**
2. according to BMI all the individuals are categorized in 3 group
3. represents the ratio between body mass and age
4. a value below 18,5 corresponds to un underweight adult
5. a value of 23 corresponds to an overweight patient
6. is defined as the body mass divided by the square of the body height

**Answers: c, e**

1. **(MC) Which of the following are listed as high cardiac risk procedures**
2. endoscopic cholecystectomy
3. eye surgery
4. pneumonectomy
5. total hip replacement
6. open aortic valve replacement

**Answers: c, e**

1. **(MC) Which of the following are listed as low risk procedures**
2. liver surgery
3. dental surgery
4. plastic reconstructive interventions
5. knee replacement
6. breast surgery

**Answers: b, c, e**

1. **(MC) Which of the following are listed as moderate risk procedures**
2. thyroidectomy
3. knee arthroscopy
4. abdominal hysterectomy
5. surgery of brain tumors
6. esophagectomy

**Answers: c, e**

1. **(MC) Which of the following are listed as high risk procedures**
2. repair of aortic arch
3. surgical repair of abdominal wall hernia
4. breast lift surgery
5. emergency abdominal surgery for bowel perforation
6. liver resection

**Answers: a, d, e**

1. **(SC) Which of the following are listed as moderate risk procedures**
2. carotid endarterectomy
3. coronary artery bypass grafting
4. TURP
5. tonsillectomy
6. hysteroscopy

**Answer: a**

1. **(MC) Which of the following are listed as low risk procedures**
2. mitral valve replacement
3. knee arthroscopy
4. surgical face lifting
5. kidney transplantation
6. rhinoplasty

**Answers: b, c, e**

1. **(MC) Which of the following criteria are used by STOP-bang questionnaire?**
2. gender
3. weight
4. heart rate
5. blood pressure
6. snoring

**Answers: a, d, e**

1. **(MC) Which of the following criteria are used by STOP-bang questionnaire?**
2. tiredness
3. height
4. neck circumference
5. BMI
6. abdominal circumference

**Answers: a, c, d**

1. **(MC) Which of the following are risk factors for sleep apnea syndrome?**
2. age > 50
3. a value of BMI equal with 28
4. hard work
5. male gender
6. abdominal circumference > 100 cm

**Answers: a, d**

1. **(MC) Which of the following according to the STOP-BANG questioner are risk factors for sleep apnea syndrome?**
2. female gender
3. snoring in supine position
4. BMI > 30 kg/m2
5. high blood pressure
6. bradicardia

**Answers: b, d**

1. **(SC) Concerning preoperative chest X-ray:**
2. should be performed in case of all patients who are going to be intubated
3. is mandatory to a patient diagnosed with COPD on chronic medication scheduled for hip replacement
4. is compulsory for all smoking patients
5. is recommended to patient scheduled for CABG
6. is not justified if there are no auscultative changes

**Answer: d**

1. **(MC) Concerning preoperative chest X-ray:**
2. is recommended to the patient scheduled for major abdominal surgery and who have had a history of pulmonary resection
3. should be performed in case of patient with no pulmonary symptoms but scheduled for breast lift surgery
4. is mandatory for the patient with thorax deformity scheduled for TURP
5. is mandatory for the patient who presents new-onset pulmonary symptoms
6. is mandatory for the patient with no pulmonary symptoms, scheduled for liver surgery but who stopped smoking 2 years ago

**Answer: a, c, d, e**

1. **(MC) Which of the following are recommended to the patient which have a STOP-bang score=6**
2. lung function tests
3. arterial blood gases
4. pulse oximetry
5. CT scan of the chest
6. polysomnography

**Answer: a, b, c, e**

1. **(MC) Concerning preoperative ABG (arterial blood gases)**
2. should be checked in case of all smoking patients scheduled for elective surgery
3. is mandatory for the morbid obese patient scheduled for bariatric surgery
4. should be considered in case of patient diagnosed with COPD receiving long term therapy and scheduled for left hemicolectomy
5. should be considered in case of patient diagnosed with OSAS scheduled for surgical repair of abdominal wall hernia
6. is mandatory 2 weeks before surgery for the patient scheduled for Aortic valve replacement

**Answers: b, c, d**

1. **(MC) Which of the following are defined as perioperative cardiac complications:**
2. myocardial infarction
3. primary cardiac arrest
4. pulmonary embolism
5. pulmonary edema
6. bradicardia

**Answers: a, b, d**

1. **(MC) Which of the following are defined as perioperative cardiac complications:**
2. atrial tachycardia
3. complete heart block
4. ventricular fibrillation
5. myocardial infarction
6. atrial bradicardia

**Answers: b, c, d**

1. **(MC) Which of the following are true concerning the smoking?**
2. is a reversible risk factor
3. is a risk factor for bleeding disorders
4. is a risk factor for cardiac complications
5. rises the risk of pulmonary complications
6. rises the rate of mortality in perioperative period

**Answers: a, c, d, e**

1. **(MC) Which of the following are true concerning the smoking cessation?**
2. after one month of cessation the amount of sputum is much more less
3. in case of elective surgery is encouraged to stop smoking at least 2 months before
4. the smoking cessation doesn’t change the postoperative evolution
5. the cessation of smoking at least 2 days before reduces the risk of pulmonary complications
6. stopping smoking within 8 weeks before surgery might worsen postoperative outcome

**Answers: b, e**

1. **(MC) Select the right answers concerning the Beta-blokers in perioperative period**
2. patient who regularly takes Beta-blokers should discontinue the medication a day before surgery
3. patient who regularly takes Beta-blokers should discontinue the medication in the day of surgery
4. patient who regularly takes Beta-blokers should continue the medication in the day of surgery
5. patient who regularly takes Beta-blokers should discontinue the medication during the hospitalization
6. patient who regularly takes Beta-blokers should restart the therapy postoperatively as soon as possible

**Answers: c, e**

1. **(MC) Select the right answers concerning the long-term medications in perioperative period:**
2. Beta-blokers should be taken even in the day of surgery
3. Calcium channel blockers should be discontinued in the day before surgery
4. Diuretics should be given in the day of surgery
5. Aspirin in high-bleeding risk surgery should be discontinued at least 5 days before
6. NSAID should not be discontinued before surgery

**Answers: a, d**

1. **(SC) Which from the following are true concerning the long-time use of corticosteroids in perioperative period?**
2. patients who take for long time corticosteroids before surgery should take the same dose
3. patients who take for long time corticosteroids before surgery should rise the regular dose with 50%
4. patients who take for long time corticosteroids before surgery should not take the medication
5. patients who take for long time corticosteroids before surgery should take half from regular dose
6. patients who take for long time corticosteroids before surgery should not take the medication but it is recommended to restart postoperatively as soon as possible

**Answer: a**

1. **(MC) Select the right answers concerning the Metformin in perioperative period:**
2. metformin prior to surgery should be discontinued
3. metformin can induce metabolic acidosis
4. metformin can induce metabolic alkalosis
5. metformin should be discontinued at least 24 hours prior to surgery
6. after discontinuation of metformin the sugar level should be controlled with another oral antidiabetic drug

**Answers: a, b, d**

1. **(MC) Which of the following are true concerning the anticoagulant medications?**
2. bridging therapy usually is recommended in case of vitamin K antagonists
3. bridging therapy is recommended in case of all anticoagulants
4. the cessation time for factor Xa inhibitors depends on renal function
5. the cessation time for factor Xa inhibitors depends on bleeding risk of surgery
6. the direct thrombin inhibitors should be discontinued at least 5 days before surgery regardless of bleeding risk of surgery

**Answers: a, c, d**

1. **(MC) Concerning the vitamin K antagonists**
2. in case of elective surgery, the discontinuation should be ensured 5 days before
3. the test used for monitoring of vitamin K antagonist’s effectiveness is APTT
4. bridging therapy is mandatory in all the cases
5. bridging therapy is ensured only by low molecular weight heparin
6. bridging therapy is ensured by regular heparin or low molecular weight heparin

**Answers: a, e**

1. **(MC) Concerning the vitamin K antagonists (VKA)**
2. the decision to use bridging therapy or not depends of balance between the risk of surgical bleeding and risk of thrombotic events
3. the discontinuation of vitamin K antagonists is mandatory in all the cases of elective surgery regardless of risk of bleeding
4. the warfarin is a vitamin K antagonist
5. the criteria of effectiveness of vitamin K antagonists is the doubled-tripled level of INR
6. for neutralization of VKA in emergency are used orally or i/v administration of vitamin K

**Answers: a, c, d**

1. **(MC) Which from the following are true concerning the diabetic patients?**
2. the morbidity is higher than in non-diabetic patients
3. the mortality is the same as in non-diabetic patients
4. the risk of coronary disease is the same as in non-diabetic patients
5. the cardiac ischemia could be “silent”
6. the risk of hypoglycemia in perioperative period is high due to preoperative fasting

**Answers: a, d, e**

1. **(MC) Select the most common complications which can be developed by a diabetic patient in perioperative period:**
2. myocardial infarction
3. cardiac rhythm disorders
4. coagulation disorders
5. postoperative wounds infection
6. delayed weaning from ventilator

**Answers: a, b, d, e**

1. **(MC) Select the most common complications which can be developed by a diabetic patient in perioperative period:**
2. hypoglycemia
3. hypotension
4. hyperglycemia
5. dysrhythmia
6. anaphylaxis

**Answers: a, b, c, d**

1. **(MC) Which from the following are listed as complications associated to hyperglycemia?**
2. dehydration
3. oliguria
4. hyperosmolarity
5. osmotic diuresis
6. overloading

**Answers: a, c, d**

1. **(MC) Which from the following are associated with hyperglycemia?**
2. low blood viscosity
3. impaired wounds healing
4. urinary tract infections
5. inhibition of white cells chemotaxis
6. raised thrombogenesis

**Answers: b, c, d, e**

1. **(MC) Which from the following are associated with hyperglycemia?**
2. glycosuria
3. urinary tract infections
4. hypervolemia
5. low plasma osmolarity
6. hyperviscosity

**Answers: a, b, e**

1. **(MC) Which from the following neurological changes are associated with hypoglycemia?**
2. confusion
3. raised level of alertness
4. seizures
5. headache
6. somnolence

**Answers: a, c, d, e**

1. **(MC) Recognition of hypoglycemia in perioperative period could be challengeable because:**
2. patient received anesthetics
3. patient is hungry
4. patient received opioids
5. patient was given sedatives
6. patient is afraid of death

**Answers: a, c, d**

1. **(MC) Choose from the following the mechanisms responsible of hypoglycemia in perioperative period:**
2. preoperative fasting
3. discontinuation of oral antidiabetics before surgery
4. residual effects of long acting oral antidiabetics
5. surgical stress
6. overdosing of insulin

**Answers: a, c, e**

1. **(MC) Due to which of the following in postoperative period patients usually develop** **hyperglycemia**
2. preoperative fasting
3. surgical stress
4. sympathomimetic drugs used intraoperatively
5. sympatholytic drugs used intraoperatively
6. dexamethasone given for prophylaxis of PONV

**Answers: b, c, e**

1. **(SC) Choose the range level of INR which was accepted as safe for invasive surgery**
2. 1.2 – 1.8
3. 0.8 – 1,5
4. 1.4 – 2.0
5. 1.5 – 1.7
6. Below 2.0

**Answer: b**

1. **(MC) Which from the following statements are true concerning coagulation tests?**
2. preoperative tests of the conventional clotting parameters are mandatory regardless of volume and length of surgery
3. preoperative tests of the conventional clotting parameters include APTT, PT, INR, platelets count
4. the preoperative tests of the conventional clotting parameters are adequate for the detection of Willebrand disease
5. the preoperative tests of the conventional clotting parameters are less useful than a standardized bleeding questioner
6. the preoperative tests of the conventional clotting parameters are justified only if patient take some anticoagulants or has a positive bleeding history

**Answers: b, d, e**

1. **(MC) Which from the following are used to categorize the patient as one with positive bleeding history?**
2. bleeding into a join
3. early menarche
4. prolonged menstruation (> 7 days)
5. prolonged bleeding after a cut
6. problem with wound healing

**Answers: a, c, d, e**

1. **(MC) Which from the following tests are recommended to be checked preoperatively in case of patient known with Type I diabetes mellitus for more than 20 years?**
2. sugar level
3. ASAT, bilirubin
4. creatinine level
5. NT- proBNP
6. HbA1C

**Answers: a, c, e**

1. **(MC) Which from the following tests are recommended to be checked preoperatively in case of patient known with liver pathology?**
2. hemoglobin level
3. ASAT, bilirubin
4. TSH level
5. PT/INR
6. platelet count

**Answer: a, b, d, e**

1. **(MC) Which from the following tests are recommended to be checked preoperatively in case of patient known with chronic renal pathology?**
2. creatinine level
3. potassium level
4. aPTT
5. arterial blood gases
6. hemoglobin level

**Answers: a, b, e**

1. **(MC) Which from the following tests are recommended to be checked preoperatively in case of patient known with congestive heart failure?**
2. creatinine level
3. C-reactive protein
4. sodium level
5. potassium level
6. complete blood count

**Answers: a, c, d, e**

**Perioperative anemia. (I.Chesov)**

1. **(SC) The definition of patient blood management according to Society for the Advancement of Blood Management is:**
2. Patient blood management is a multidisciplinary approach to care, using evidence-based best practice in the management of perioperative anaemia and blood transfusion.
3. Patient blood management is the timely application of evidence-based medical and surgical concepts design to maintain hemoglobin concentration, optimize homeostasis and minimize blood loss in an effort to improve patient outcome.
4. Patient blood management is the timely application of evidence-based medicine in an effort to improve patient outcome.
5. Patient blood management is the timely application of evidence-based medical and surgical concepts design to maintain hemoglobin concentration in an effort to improve patient outcome.
6. Patient blood management is the maintenance of hemoglobin concentration, optimization of homeostasis and minimization of blood loss.

**Answer b**

1. **(SC) Indication for blood transfusion are:**
2. Severe malaria induce in children
3. Written request from consultant surgeon
4. Major trauma with exsanguinations
5. Nutrition support for critical patient
6. Anemia in selective surgical patient

**Answers a, b**

1. **(MC) Blood transfusion are associated with:**
2. Increased length of hospital stay
3. Decreased risk of surgical site infection
4. Tumor grow promotion
5. Decreased risk of mortality
6. Lung injury

**Answers a, c, e**

1. **(MC) Pillar or patient blood management are:**
2. Early detection and treatment of perioperative anemia
3. Healthcare associated cost reduction
4. Minimizing blood loss and intensified use of blood conserving measures.
5. Rational and guideline appropriate use of allogenic blood products
6. Respect for patient believes, values, goals and maximizing patient satisfaction

**Answers a, c, d**

1. **(SC) According to WHO definition a non pregnant woman is anemic if:**
2. Hemoglobin level is less than 130 g/l
3. Hemoglobin level is less than 120 g/l
4. Hemoglobin level is less than 110 g/l
5. Hemoglobin level is less than 100 g/l
6. Hemoglobin level is less than 125 g/l

**Answer b**

1. **(SC) According to WHO definition pregnant woman is anemic if:**
2. Hemoglobin level is less than 130 g/l
3. Hemoglobin level is less than 120 g/l
4. Hemoglobin level is less than 110 g/l
5. Hemoglobin level is less than 100 g/l
6. Hemoglobin level is less than 125 g/l

**Answer c**

1. **(SC) According to WHO definition a man is anemic if:**
2. Hemoglobin level is less than 130 g/l
3. Hemoglobin level is less than 120 g/l
4. Hemoglobin level is less than 110 g/l
5. Hemoglobin level is less than 100 g/l
6. Hemoglobin level is less than 125 g/l

**Answer b**

1. **(MC) Management of anemia means:**
2. Monitoring for anemia through the course of care
3. Enhancing physiological adaptation to anemia
4. Adjustment of anticoagulants before procedures
5. Evidence based use of transfusion when indicated
6. Quick action to arrest blood loss

**Answers a, b, c**

1. **(SC) Optimization of hemostasis means:**
2. Risk assessment (patient, coagulophaty)
3. Managing underlying cause of anemia
4. Quantitative and qualitative coagulation assessment
5. Goal-directed therapy to correct coagulopathies
6. Attention to patients needs, preferences and concerns

**Answers a, c, d**

1. **(MC) Interdisciplinary blood conservation modalities are:**
2. Continuous assessment of blood loss (amount and rate)
3. Autologus transfusion techniques
4. Minimizing diagnostic blood loss
5. Providing patients with all available PBM options
6. Supporting hematopoiesis

**Answers a, b, c**

1. **(SC) Anemia prevalence in surgical population according to GA Hans (2013) is**
2. Up to 60%
3. 5-78% of patients
4. 27 % of patients
5. 34 % of patients
6. 50% of patients

**Answer b**

1. **(MC) Adverse perioperative outcome associated with anemia are:**
2. Increased risk of Acute Kidney Injury
3. Increase perioperative blood transfusion
4. Delayed ICU discharged
5. Delayed food intake
6. Increase risk of 30 day postoperative mortality

**Answers a, b, e**

1. **(MC) Perioperative lethal tirade:**
2. Anemia
3. Blood loss
4. Transfusion
5. Myocardial infarction
6. Acute respiratory failure

**Answers a, b, c**

1. **(MC) Causes of increased oxygen requirements in the perioperative period:**
2. Pain
3. Nausea
4. Fasting
5. Shivering
6. Stress response

**Answers a, d, e**

1. **(MC) Causes of reduce oxygen delivery in perioperative period:**
2. Reduce cardiac output due to hypovolaemia or cardiac depression by drugs.
3. Decrease oxygen saturation due to atelectasis, pneumonia, thromboembolic event.
4. Decrease affinity of the haemoglobin for oxygen due to hypothermia
5. Reduction in the haemoglobin due to surgical blood loss.
6. Reduce amount of oxygen dissolved in blood plasma

**Answer a, b, d**

1. **(SC) The most common cause of anemia in the surgical population is:**

- Vitamin B6 deficiency

- Riboflavin deficiency

- Iron deficiency

- Pyridoxine deficiency

- Haemolysis

**Answer C**

1. **(MC)Causes of microcytic anemia:**
2. Iron deficiency
3. Sideroblastic anemia
4. Haemolitic anaemia
5. Vitamin B6 deficiency
6. Pregnancy

**Answers a, b, d**

1. **(MC) Causes of normocytic anemia:**
2. Sickle cell anemia
3. Pyridoxine deficiency
4. Aplastic anemia
5. Alcoholism
6. Medication

**Answers a, b, c**

1. **(MC) Routinely blood count should be perform before surgery for:**
2. Minor risk surgery, ASA score 4
3. Intermediate risk surgery, ASA score 1
4. Intermediate risk surgery, ASA score 3
5. Major risk surgery, ASA score 1
6. Intermediate risk surgery, ASA score 4

**Answers c, d, e**

1. **(MC) Laboratory test useful for anemia work up are:**
2. Serum Ferritin
3. Medical history
4. Trasnferrin saturation
5. C-reactive protein
6. Complete blood count

**Answers a, c, d, e**

1. **(SC) Appropriate time to assess high risk patients for anemia before surgery is:**

- 4-8 weeks

- not necessary

- 4 weeks

- 3- 8 weeks

- 8 weeks

**Answer d**

1. **(MC) Iron deficiency is recommended to be treated with:**
2. Oral iron supplementation
3. Vit B
4. Folate
5. Intravenous iron supplementation
6. Erytropoetin-stimulating agents

**Answers a, d**

1. **Recommended route of iron supplementation in perioperative period is**
2. Oral
3. Intramuscular
4. Intravenous
5. Subcutaneous
6. All of above

**Answer c**

1. **(MC) In case of autologous blood donation, it is suggested that patients benefit of:**
2. Iron supplementation
3. Cell-salvage
4. Erythropoietin-stimulating agents
5. Restrictive fluid therapy
6. Vit B1

**Answers a, c**

1. **(MC) In which cases autologous blood donation can be considered**
2. Rare blood types
3. Special antibody constellation
4. Wish of the patient
5. Just in case
6. Routine practice

**Answers a,b,c**

1. **(MC) In patients with preoperative anemia it is recommended to use:**
2. Intravenous iron
3. Restrictive transfusion policy
4. Shock packs
5. Fibrinogen concentrate
6. Erythropoietin-stimulating agents

**Answers a, b, c**

1. **(SC) Daily absorbtion of the ion in the GUT is around:**
2. 5 mg daily
3. 4 mg daily
4. 1-2 mg daily
5. 20 mg daily
6. 300 mg daily

**Answer c**

1. **(MC) The most frequent causes of anemia in preoperative period are:**
2. Iron deficiency
3. Sickle cell disease
4. Inflammation
5. Renal insufficiency
6. Vit B6 deficiency

**Answer a, c, d**

1. **(SC) A non-cancer elective major surgery in anemic patient should be:**
2. Postpone until anemia has been corrected
3. Postpone for 48-72 hours
4. There is no need to postpone the surgery
5. Patient cannot wait, the surgery is major
6. The patient decision has priority

**Answer a**

1. **(SC) An anemic patient after surgery should be treated with:**
2. Oral iron
3. Subcutaneous iron
4. Iron is contraindicated, may lead to constipation
5. Intravenous iron
6. Intramuscular iron

**Answer d**

1. **(MC) Intravenous iron may be administered:**
2. Bolus
3. Infusion over 10 min
4. Infusion over 30 min
5. Infusion over 60 min
6. Duration does not matter

**Answers c, d**

1. **(SC) Target haemglobin concentration during bleeding to to trigger blood transfusion is:**
2. 100 g/l
3. 70 g/l
4. 70-90 g/l
5. 90g/l
6. 60 g/l

**Answer c**

1. **(MC) Causes of postoperative anemia:**
2. Haemolysis
3. Haemodilution
4. Laboratory errors
5. Occult blood loss
6. Late mobilization

**Answers a, b, d**

1. **(MC) Parameters of rotational thromboelastography**
2. INR
3. INTEM
4. aPTT
5. FIBTEM
6. APTEM

**Answers b, d, e**

1. **(MC) Advantages of rotational thromboelastography vs. conventional tests**
2. Decrease of transfused RCB units per patient
3. Increase patient satisfaction
4. Decrease cost of hemotherapy
5. Decrease of transfused FFP units per patient
6. Decrease survival probability

**Answers a, c, d**

1. **(SC) Tranexamic acid is a**
2. Procoagulant drug
3. Activator the platelets
4. Antifibrinolytic drug
5. Trombolytic drug
6. No of above

**Answer c**

1. **(MC) Coagulation co-factors are:**
2. Ph
3. K+
4. Ca++
5. Temperature
6. All of above

**Answers a, ,c, d**

1. **(SC) First dose of Tranexamic acid**
2. 500 mg over 10 min.
3. 1000 mg over 10 min
4. 1000 mg over 8 hours
5. 1000 mg over 30 min
6. 500 mg over 30 min.

**Answer b**

1. **(SC) First dose of tranexamic acid should be administer in:**
2. First hour of hemorrhage
3. As soon as hemorrhage was diagnose
4. First 6 hours of hemorrhage
5. First 3 hours of hemorrhage
6. No specific time requirements

**Answer d**

1. **(SC) Second dose of Tranexamic acid**
2. 500 mg over 10 min.
3. 1000 mg over 30 min
4. 1000 mg over 8 hours
5. 1000 mg over 30 min
6. 1000 mg over 10 min.

**Answer e**

1. **(MC) Oxy-haemoglobin dissociation curve is influenced by:**
2. Haemoglobin concentration
3. Temperature
4. Ph
5. 2,3-DPG
6. PaO2

**Answers b, c, d**

1. **(MC) Causes of Macrocytic anemia**
2. Medication
3. Vitamin B12 deficiency
4. Alcoholism
5. Haemolysis
6. Pregnancy

**Answers a, b, c**

1. **(MC) Hepcidin:**
2. Blocks absorption of iron by duodenum
3. Promote iron loss from the Gut
4. Blocks recycling of heme-iron from senescent erythrocytes
5. Facilitate iron delivery to cells
6. Block iron storage in liver

**Answers a, c**

1. **(MC) Adjuvant tools for the management of a bleeding are:**
2. Permissive hypotension
3. Limited fluid infusion
4. Temperature control
5. Early surgery
6. Coagulopathy treatment

**Answer a, b, c**

1. **(MC) Pragmatic approach “global correction” include:**
2. Iron isomaltosid
3. Vitamin B12
4. Vitamin B6
5. Folate
6. Vitamin C

**Answers a, b, d**

***Rational antibiotherapy and antibioprofilaxy (T.Ambrosii)***

1. **(SC) What does the ability of a microorganism to survive at a given concentration of an antimicrobial agent at which the normal population of the microorganism would be killed, mean:**
2. Minimum inhibitory concentration
3. Epidemiological breakpoint
4. Epidemiological cut-off
5. Antibiotic resistance
6. Clinical resistance

**Answer: b**

1. **(SC) What does the ability of a microorganism to survive treatment with a clinical concentration of an antimicrobial agent in the body mean:**
2. Minimum inhibitory concentration
3. Epidemiological breakpoint
4. Epidemiological cut-off
5. Antibiotic resistance
6. Clinical breakpoint

**Answer: e**

1. **(SC) Bacterium carrying several antibiotic‑resistant genes is called:**
2. Multi‑resistant bacteria
3. Enterococci
4. Antimicrobial agent
5. Pandrug-resistant
6. Methicillin-resistant

**Answer: a**

1. **(MC) Choose bacterial mechanisms of antibiotic resistance:**
2. Prevent antibiotic from reaching its target – impaired influx or increased efflux
3. Invasion/host cell
4. Enzymatic inactivation (degradation, alteration)
5. Binding to host surface
6. Alter target – “ribosomal protection”

**Answers: a, c, e**

1. **(MC) Which of the following is true - prevent antibiotic from reaching its target – impaired influx or increased efflux:**
2. Acetyl-, phospho-, adenylyltransferases (aminoglycosides)
3. “MLSB resistance” vs. macrolides, lincosamides, streptogramin B
4. Bacterial esterases (macrolides)
5. Tet(AE) and Tet(K) efflux pumps (tetracyclines)
6. Altered active transporters (aminoglycosides)

**Answers: d, e**

1. **(MC) Which of the following is true - Enzymatic inactivation (degradation, alteration)**
2. Bacterial esterases (macrolides)
3. Tet(AE) and Tet(K) efflux pumps (tetracyclines)
4. Altered active transporters (aminoglycosides)
5. Tet(M) ribosomal protection protein (teracyclines)
6. Acetyl-, phospho-, adenylyltransferases (aminoglycosides)

**Answers: a, e**

1. **(MC) Which of the following is true - Alter target – “ribosomal protection”**
2. Tet(M) ribosomal protection protein (teracyclines)
3. “MLSB resistance” vs. macrolides, lincosamides, streptogramin B
4. Tet(AE) and Tet(K) efflux pumps (tetracyclines)
5. Altered active transporters (aminoglycosides)
6. Bacterial esterases (macrolides)

**Answers: a, b**

1. **(SC) Which of the following antibiotics blocks cell wall formation of the bacteria:**
2. B-lactams
3. Quinolones
4. Rifampin
5. Macrolides
6. Glycopeptides

**Answer: a**

1. **(MC) Which of the following antibiotics blocks protein synthesis of the bacteria:**
2. Aminoglycosides
3. Tetracyclines
4. Macrolides
5. B-lactams
6. Sulfonamide

**Answers: a, b, c**

1. **(SC) Which of the following antibiotics inhibits bacterial RNA-polymerase of the bacteria:**
2. B-lactams
3. Quinolones
4. Rifampin
5. Macrolides
6. Glycopeptides

**Answer: c**

1. **(SC) Which of the following antibiotics inhibits DNA replication of the bacteria:**
2. Penicillins
3. Vancomycin
4. Gentamycin
5. Trimethoprim
6. Quinolones

**Answers: e**

1. **(MC) Which of the following antibiotics blocks the formation of nucleic acids and f-met of the bacteria:**
2. Trimethoprim
3. Sulfonamide
4. Glycopeptides
5. B-lactams
6. Aminoglycosides

**Answers: a, b**

1. **(SC) Which of the following resistance mechanism is true for penicillins:**
2. Mutation of binding molecules
3. Ribosome protection
4. Inactivation
5. Horizontal Gene Transfer
6. Distruction

**Answers: c**

1. **(MC) Which of the following antibiotics has as resistance mechanism mutation in binding molecules:**
2. Vancomycin
3. Quinolones
4. Rifampin
5. Sulfonamide
6. Cephalosporis

**Answers: a, b, c, d**

1. **(MC) Which of the following antibiotics has as resistance mechanism inactivation:**
2. Trimethoprim
3. Penicillins
4. Gentamycin
5. Tetracyclines
6. Quinolones

**Answers: b, c, d**

1. **(SC) Which of the following antibiotics has as resistance mechanism ribosome protection:**
2. Rifampin
3. Cephalosporis
4. Vancomycin
5. Gentamycin
6. Macrolides

**Answer: e**

1. **(MC) Complete set of antibiotic resistance genes is composed of the following types of genes:**
2. Pathogenic bacteria
3. NDM - 1
4. Antibiotic producers
5. Cryptic resistance genes
6. Precursor genes

**Answers: a, c, d, e**

1. **(SC) Expression for the collection of all the antibiotic resistance genes and their precursors in both pathogenic and non-pathogenic bacteria is called:**
2. Super Bacteria
3. Resistome
4. Minimum inhibitory concentration
5. Ribosomal protection
6. Quinolone resistance

**Answer: b**

1. **(MC) Which of the following reveals the importance of identification of the multidrug – resistant organisms:**
2. Determining cost of the treatment
3. Determining the average of the bacterium life
4. Determining the clinical significance of a particular pathogen
5. Guiding physician care of the patients
6. Determining the laboratory testing for detection of antibacterial resistance is warranted

**Answers: c, d, e**

1. **(MC) Which of the following reveals the importance of identification of the multidrug – resistant organisms:**
2. Determining the laboratory testing for detection of antibacterial resistance is warranted
3. The influence of comorbidities on bacterial resistance
4. Determining the type of antibacterial therapy that is appropriate
5. Determining the whether infectious organisms are risk for others patients in the hospital, the public and other laboratory workers
6. Determining cost of the treatment

**Answers: a, c, d**

1. **(MC) The following techniques are used for bacterial identification:**
2. Riboprinter analysis
3. Rapid pathogen confirmation
4. Physical methods
5. Genetical methods
6. Biochemical methods

**Answers: c, d, e**

1. **(MC) The following characteristics are based on biochemical methods:**
2. Proteome of the bacteria
3. Specific genes of the bacteria
4. Metabolic pathways of the bacteria
5. Characterization of enzymes
6. Characterization of metabolic waste

**Answers: c, d, e**

1. **(SC) Which of the following characteristics is based on physical methods:**
2. Characterization of proteome of the bacteria
3. Characterization of specifics genes of the bacteria
4. Characterization of methabolic pathways of bacteria
5. Characterization of enzymes and metabolic waste
6. Characterization of pH indicator

**Answers: a**

1. **(MC) The successful identification of microbe depends on:**
2. Physician experience
3. Using the proper aseptic techniques
4. Correctly obtaining the specimen
5. Correctly handling the specimen
6. Use care and tact to avoid patient harm

**Answers: b, c, d, e**

1. **(SC) Microscopic Morphology includes a combination of the following:**
2. Cell shape
3. Size
4. Metabolism
5. Gram stain
6. Special structure

**Answers: a, b, d, e**

1. **(MC) The macroscopic morphology characters revealed on solid media are:**
2. Degree of growth
3. Structure
4. Pigmentation
5. Consistency
6. Presence of deposit and its character

**Answers: b, c, d**

1. **(MC) The macroscopic morphology characters revealed on fluid media are:**
2. Haemolysis
3. Nature of surface growth and odour
4. Presence of turbidity and its nature
5. Degree of growth
6. Presence of deposit and its character

**Answers: b, c, d, e**

1. **(MC) Which of the statements about antibiotic sensitivity is true?**
2. Antibiotic sensitivity is a term used to describe the susceptibility of bacteria to antibiotics
3. The more zone of inhibition, the more the sensitivity to the antibiotics
4. Antibiotic susceptibility testing is usually carried out to determine which antibiotic will be most successful in treating a bacterial infection *in vivo*
5. The ability of bacteria and other microorganisms to resist the effects of an antibiotic
6. Ability of a microorganism to survive at a given concentration of an antimicrobial agent

**Answers: a, b, c**

1. **(MC) Which of the following statements about narrow-spectrum is true?**
2. Effective against gram-positive organisms and a significant number of gram-negative organisms
3. Effective against many different types of bacteria (e.g. both gram positive and negative)
4. Effective against a subset of bacteria (either gram positive and negative)
5. Isoniazid
6. Ampicilin

**Answers: c, d**

1. **(MC) Which of the following statements about extended - spectrum is true?**
2. Effective against gram-positive organisms and a significant number of gram-negative organisms
3. Effective against many different types of bacteria (e.g. both gram positive and negative)
4. Effective against a subset of bacteria (either gram positive and negative)
5. Isoniazid
6. Tetracyclin

**Answers: a, d**

1. **(MC) Which of the following statements about broad-spectrum is true?**
2. Effective against gram-positive organisms and a significant number of gram-negative organisms
3. Effective against many different types of bacteria (e.g. both gram positive and negative)
4. Effective against a subset of bacteria (either gram positive and negative)
5. It can alter the nature of intestinal flora
6. Tetracyclin and Chloramphenicol

**Answers: b, d, e**

1. **(MC) Choose antibiotics that act on cell wall synthesis:**
2. Vancomycin
3. Ciprofloxacin
4. Cephalosporins
5. Sulfonamides
6. Penicillins

**Answers: a, c, e**

1. **(MC) Choose antibiotics that act on the DNA gyrase:**
2. Ciprofloxacin
3. Rifampin
4. Lincomycin
5. Penicillins
6. Novobiocin

**Answers: a, e**

1. **(MC) Choose antibiotics that act on the protein syntesis:**
2. Vancomycin
3. Erytromycin
4. Clindamycin
5. Chloramphenicol
6. Actinomycin

**Answers: b, c, d**

1. **(MC) Choose antibiotics that act on the folic acid metabolism:**
2. Trimethroprim
3. Sulfonamides
4. Carbapenems
5. Monobactams
6. Cycloserine

**Answers: a, b**

1. **(MC) Choose antibiotics that act on the cell wall synthesis:**
2. Trimethroprim
3. Sulfonamides
4. Carbapenems
5. Monobactams
6. Cycloserine

**Answers: c, d, e**

1. **(MC) Choose antibiotics that act on the protein synthesis (30S inhibitors):**
2. Penicillins
3. Tetracyclines
4. Streptomycin
5. Gentamycin
6. Amikacin

**Answers: b, c, d, e**

1. **(SC) Choose antibiotics that act on the RNA elongation:**
2. Actinomycin
3. Ciprofloxacin
4. Rifapim
5. Clindaycin
6. Lincomycin

**Answer: a**

1. **(MC) Which of the following methods is used for selection of antimicrobial agent:**
2. Doctor's knowledge
3. Empiric therapy
4. Empiric patient
5. Organism’s susceptibility to the antibiotic
6. Environmental safety

**Answers: b, d**

1. **(MC) Which of the following methods is used for the selection of antimicrobial agent:**
2. Patient factors
3. Safety of the agent
4. Site of infection
5. Cost of therapy
6. Environmental safety

**Answers: a, b, c, d**

1. **(SC) What does the lowest concentration that inhibits the growth of bacterial population mean:**
2. Minimum inhibitory concentration
3. Minimum bactericidal concentration
4. Concentration dependent killing
5. Post- antibiotic effect
6. Time-dependent killing

**Answer: a**

1. **(SC) What does the lowest concentration that kills 99.9% of the bacterial population mean?**
2. Minimum inhibitory concentration
3. Minimum bactericidal concentration
4. Concentration dependent killing
5. Time-dependent killing
6. Post- antibiotic effect

**Answer: b**

1. **(SC) What does the persistent suppression of microbial growth after the fall of antibiotic levels below the minimum inhibitory concentration mean?**
2. Time-dependent killing
3. Concentration dependent killing
4. Post antibiotic effect
5. Minimum bacteriocidal concentration
6. Minimum inhibitory concentration

**Answer: c**

1. **(MC) Which of the following statements about *Time-dependent killing* is true*:***
2. Persistent suppresion of microbial growth after the fall of antibiotic levels below the minimum inhibitory concentration
3. Dependent on the % of time that blood concentrations remain above the minimum inhibitory concentration
4. Antibiotics including beta-lactams, glycopeptides, macrolides, clindamycin, linezolid
5. Antibiotics including aminoglycosides
6. Significant increase in the rate of bacterial killing as the drug concentration increases

**Answers: b, c**

1. **(MC) Which of the following statements about *Concentration dependent killing* is true:**
	1. Dependent on the % of time that blood concentrations remain above minimum inhibitory concentration
	2. Antibiotics including aminoglycosides
	3. Significant increase in the rate of bacterial killing as the drug concentration increases
	4. Antibiotics including beta-lactams, glycopeptides, macrolides, clindamycin, linezolid
	5. The lowest concentration that inhibits the growth of bacterial population

**Answers: b, c**

1. **(MC) Which of the following statements relates to antimicrobial stewardship?**
2. A coordinated program that promotes the appropriate use of antimicrobials
3. It improves patient outcomes
4. It reduces microbial resistance
5. It reduces comorbidities
6. It decreases the spread of infections caused by multidrug-resistant organisms

**Answers: a, b, c, e**

1. **(MC) Which of the following statements relates to antimicrobial stewardship:**
2. Rapid identification of patients with bacterial infections
3. Appropriate empirical treatment selection
4. Identification of chronic diseases
5. Shortening therapy duration
6. Improving the knowledge of physicians

**Answers: a, b, d**

1. **(MC) Choose the statements relating to antimicrobial stewardship:**
2. Appropriate empirical treatment selection
3. It reduces comorbidities
4. Using PK-PD characteristics to optimize antimicrobial dosing and administration modalities
5. De-escalation once culture results become available
6. Treatment of chronic diseases

**Answers: a, c, d**

1. **(MC) Which of the following statements relates to toxicity after using of antibiotics:**
2. Anaphylactic reactions to penicillin
3. Kidney damage
4. Liver damage
5. Multiple antibiotic resistant
6. Bone marrow (Chloramphenicol and aplastic anemia)

**Answers: b, c, e**

1. **(MC) The following sentences relate to hypersensitivity reactions after using of antibiotics:**
2. Anaphylactic reactions to penicillin
3. Triple antibiotic ointment (rashes and neomycin)
4. Fluoroquinolones may cause cartilage demage
5. Diarrhea
6. Yeast infection

**Answers: a, b**

1. **(MC) Choose the statements relating to fetal damage/risk to pregnant women after using of antibiotics:**
2. Constipation, diarrhea
3. Tetracyclin causes dislocation of teeth in children and may cause liver damage in pregnant women
4. Kidney damage
5. Fluoroquinolones may cause cartilage demage
6. May neutralize effectiveness of contraceptive pills

**Answers: b, d**

1. **(MC) Which of the following statements relates to complications after antibiotic therapy:**
2. Resistance
3. Hypersensitivity
4. Direct toxicity
5. Super infections
6. Hypertension

**Answers: a, b, c, d**

1. **(MC) The following statements relate to appropriate measures of the rapid identification of patients with infections:**
2. An accurate diagnosis of bacterial infection should be made before administration of any antibiotics.
3. Obtaining specimens for appropriate cultures before antibiotic administration
4. The timing of initial therapy should be guided by the urgency of the situation.
5. De-escalation refers to the modification of an empirical antibiotic regimen to an alternate regimen with a narrower spectrum of activity.
6. Molecular diagnostic testing has the potential to be used for timely and rapid identification of causative microorganism.

**Answers: a, b, e**

1. **(MC) Which of the following statemets relates to appropriate measures of the empiric antibiotic therapy:**
2. The timing of initial therapy should be guided by the urgency of the situation.
3. Empirical therapy should be based on regularly updated local data on the incidence of causative organisms and their susceptibility to antimicrobial agents
4. De-escalate the empirical antibiotic regimen once the etiological pathogen is identified
5. Benefits from combination therapy have been inconsistent
6. Studies have shown that early use of appropriate antibiotic therapy improves outcome.

**Answers: b, e**

1. **(MC) The following statements relate to appropriate measures of the shorten antibiotic treatment duration:**
2. Duration of antibiotic therapy can be shortened to 7 days for most patients including septic shock, based on therapeutic response and microbiological data.
3. Studies have shown that procalcitonin-guided therapy resulted in shorter duration of antibiotics in units where antibiotic duration exceeds 10 days
4. Stop antibiotic therapy on day 3 if infection becomes unlikely based on negative cultures and clinical course.
5. Molecular diagnostic testing has the potential to be used for timely and rapid identification of causative microorganism.
6. Currently, there is no biomarker of infection that clinicians can rely exclusively on.

**Answers: a, b**

1. **(MC) The following statements about prophylactic antimicrobial therapy are true:**
2. Antimicrobial prophylaxis can be primary, secondary or for eradication of colonising organisms
3. Rapid identification of patients with bacterial infections, while reducing the numbers of patients treated unnecessarily
4. Perioperative antimicrobial prophylaxis is to prevent surgical site infections
5. Interavenous prophylaxis should be given within 30 to 60 minutes before the surgical incision to maximise its effectiveness
6. Optimize antimicrobial dosing and administration modalities

**Answers: a, c, d**

1. **(MC) Which of the following factors we must be considered when initiating empirical antibiotic therapy?**
2. Likely causative organism
3. Patient factors
4. Antimicrobial profiles
5. Age
6. Gender

**Answers: a, b, c**

1. **(MC) The following statements are valid for likely causative organism factor in initiating empirical antimicrobial therapy:**
2. Occupational exposure
3. Chronic lung diseases
4. Immunosuppressive states
5. Identify the most likely source of infection
6. Decide if it is a community or nosocomial infection

**Answers: d, e**

1. **(MC) Which of the following statements is valid for likely causative organism factor in initiating empirical antimicrobial therapy:**
2. Consider local epidemiological data and laboratory-oriented surveillance
3. Route of administration
4. Dose and interval
5. Severity of illness
6. Obtain source control as rapid as is practical to ensure success of therapy

**Answers: a, e**

1. **(MC) The following statements are valid for the patient factor in initiating empirical antimicrobial therapy:**
2. Malaria in endemic areas
3. Co-morbidities
4. Identify the most likely source of infection
5. Decide if community or nosocomial infection
6. Severity of illness

**Answers: a, b, e**

1. **(MC) Which of the following statements is valid for the patient factor in initiating empirical antimicrobial therapy:**
2. Route of administration
3. Dose and interval
4. Prior antimicrobial use or prolonged hospitalization
5. Pregnancy and lactation
6. Septic shock

**Answers: c, d, e**

1. **(MC) Which of the following statements is valid for the patient factor in initiating empirical antimicrobial therapy:**
2. Identify the most likely source of infection
3. Immunosuppressive states
4. Presence of renal or hepatic dysfunction
5. Decide if community or nosocomial infection
6. Diabetes mellitus

**Answers: b, c, e**

1. **(MC) The following statements are valid for the antimicrobial profile factor in initiating empirical antimicrobial therapy:**
2. Route of administration
3. Dose and interval
4. Prior antimicrobial use or prolonged hospitalization
5. Pregnancy and lactation
6. Co-morbidities

**Answers: a, b**

1. **(MC) Which of the following may be the cause of no clinical response within 48-72 hours of the antimicrobial therapy:**
2. Possibility of a secondary infection
3. Inadequate volume repletion
4. Inadequate source control
5. Non-infectious causes
6. Inadequate dose or interval

**Answers: a, c, d, e**

1. **(MC) Which of the following may be the cause of no clinical response within 48-72 hours of the antimicrobial therapy:**
2. Presence of resistant organisms
3. High price of antibiotic
4. Inadequate resuscitation
5. Inadequate penetration of antimicrobial to the site of infection
6. Inadequate spectrum of antimicrobial coverage

**Answers: a, d, e**

1. **(MC) Which of the following may be the cause of no clinical response within 48-72 hours of the antimicrobial therapy:**
2. Cancer
3. Infected prosthesis not removed
4. Inadequate penetration of antimicrobial to the site of infection
5. Acute myocardial or pulmonary infarctions
6. Deep vein thrombosis

**Answers: b, c, d, e**

1. **(MC) Drug factors that affect the antibiotic choice are:**
2. Cost
3. Drug synergy
4. Occupation
5. Severity of illness
6. Duration of therapy

**Answers: a, b**

1. **(MC) Drug factors that affect the antibiotic choice are:**
2. Allergy
3. Clearance organ function
4. Toxicity
5. Bacteriostatic vs bactericidal
6. Source site penetration

**Answers: c, d, e**

1. **(MC) Organism factors that affect the antibiotic choice are:**
2. Bioavaiability
3. Susceptibility
4. Source control
5. Duration of therapy
6. Allergies

**Answers: b, c, d**

1. **(MC) Organism factors that affect the antibiotic choice are:**
2. Assesment of response
3. Source site penetration
4. Severity of illness
5. Urgency of therapy
6. Intra vs extracellular

**Answers: a, e**

1. **(MC) Host factors that affect the antibiotic choice are:**
2. Age
3. Clearance organ function
4. Pregnancy and lactation
5. Recreational exposure
6. Allergies

**Answers: a, b, c, e**

1. **(MC) Disease factors that affect the antibiotic choice are:**
2. Travel history
3. Recreational exposure
4. Duration of therapy
5. Allergies
6. Reliability of culture

**Answers: a, b, e**

1. **(MC) Disease factors that affect the antibiotic choice are:**
2. Clearance organ function
3. Occupation
4. Travel history
5. Recreational exposure
6. Severity of illness

**Answers: b, c, d, e**

1. **(MC) Which of the following statements about prescribing principles for antibiotic therapy is true:**
2. Select empiric agents in accordance with Antibiotic Guidelines and local antibiogram data
3. Limit duration of therapy according to clinical response
4. Consider IV to oral switch as soon as clinically feasible
5. When prescribing certain agents the need for ongoing therapeutic drug monitoring should be considered
6. Consider oral to IV switch as soon as clinically response

**Answers: a, b, c, d**

1. **(MC) Which of the following factors influence the decision of the mono vs combined antimicrobial therapy:**
2. Severity of disease
3. Concomitant disease
4. Age
5. Gender
6. Hospital profile

**Answers: a, b**

1. **(MC) Which of the following factors influence the decision of the mono vs combined antimicrobial therapy:**
2. Germ type
3. Gender
4. Age
5. Phase of infection
6. Epidemiological pattern

**Answers: a, d, e**

1. **(MC) Indications for combination therapy may include:**
2. Infections caused by multiple microorganisms
3. Nosocomial infections, which may be caused by many different organisms
4. Ambulatory treatment
5. Serious infections in which a combination is synergic
6. Fever or other signs of infection in clients whose immune systems are suppressed

**Answers: a, b, d, e**

1. **(MC) Advantages of the combined antibacterial therapy may include:**
2. Synergism or additive effect
3. Antagonism
4. Effective against infections of unknown origin
5. Broadened spectrum of antimicrobial activity
6. Prevention of bacterial resistance development

**Answers: a, c, d, e**

1. **(MC) Disadvantages of the combined antibacterial therapy may include:**
2. Elevated incidence of adverse effects
3. Super infection
4. Synergism or additive effect
5. Antimicrobial resistance
6. Increased cost

**Answers: a, b, d, e**

1. **(MC) What does “antibiotic synergism” mean?**
2. The combination of antibiotics has enhanced the activity when tested together compared with each antibiotic alone
3. Ampicillin + Gentamicin in enterococcal carditis
4. The combination of antibiotics has an additive effect
5. The combination of two β-lactam antibiotics
6. The combination in which the activity of one antibiotic interferes with the activity of the other

**Answers: a, b**

1. **(MC) What does “additive effect” mean?**
2. The combination of antibiotics has enhanced the activity when tested together compared with each antibiotic alone
3. Ampicillin + Gentamicin in enterococcal carditis
4. The combination of antibiotics has an additive effect
5. The combination of two β-lactam antibiotics
6. The combination in which the activity of one antibiotic interferes with the activity of the other

**Answers: c, d**

1. **(SC) What does “antagonism” mean?**
2. The combination of antibiotics has enhanced the activity when tested together compared with each antibiotic alone
3. Ampicillin + Gentamicin in enterococcal carditis
4. The combination of antibiotics has an additive effect
5. The combination of two β-lactam antibiotics
6. The combination in which the activity of one antibiotic interferes with the activity of the other

**Answer: e**

# DVT/PE prophylaxis in the surgical patient. (D.Boleac)

1. **(MC) Risk factors for deep vein thrombosis are:**
2. History of DVT or PE
3. Immobilization
4. Malignancy
5. Pregnancy
6. Smoking

**Answers: a, b, c, d, e**

1. **(MC)The Virchow triad includes:**
2. Endothelial damage
3. Fever
4. Hypercoagulability
5. Pain
6. Venous stasis

**Answers: a, c, e**

1. **(MC) Mechanical agents for DVT prophylaxis:**
2. Graduated compression stockings
3. Intermittent pneumatic compressions
4. The tourniquet
5. Venous foot pump
6. Therapeutic Hypothermia

**Answers: a, b, d**

1. **(MC) Contraindications for mechanical DVT prophylaxis include:**
2. Active bleeding
3. Limb ischemia due to peripheral vascular disease
4. Patients with coagulopathy
5. Skin breakdown
6. Thrombocytopenia

**Answers: b, d**

1. **(MC) Contraindications for mechanical DVT prophylaxis include:**
2. Coagulopathy
3. High risk for bleeding
4. Peripheral vascular disease
5. Recent bleeding
6. Skin breakdown

**Answers: c, e**

1. **(MC) Contraindications for pharmacological DVT prophylaxis include:**
2. Active bleeding
3. Bleeding disorders
4. Patients with coagulopathy
5. Skin breakdown
6. Thrombocytopenia

**Answers: a, b, c, e**

1. **(MC) Contraindications for pharmacological DVT prophylaxis include:**
2. Coagulopathy
3. High risk for bleeding
4. Recent bleeding
5. Skin breakdown
6. Thrombocytopenia

**Answers: a, b, c, e**

1. **(MC) Which of the following statements regarding the low-molecular-weight heparins (LMWHs) are true?**
2. The LMWHs are a heterogeneous mixture of molecules of varying weights and lengths.
3. The LMWHs are identical to standard heparin but have greater potency.
4. The LMWHs are more potent inhibitors of thrombin than unfractionated heparin.
5. The LMWHs are poorly absorbed following subcutaneous administration.
6. The LMWHs oral administration is less effective.

**Answers: a, d**

1. **(MC) Routine methods of DVT prophylaxis include:**
2. Early mobilization
3. Graduated compression stockings
4. Patient information
5. Pharmacological antithrombotic prescription
6. Vena caval filters

**Answers: a, b, c, d**

1. **(MC) Which from the folllowing conditions step-up the clot formation?**
2. Alterations which causes hypercoagulability
3. Changes in blood gases
4. Electrolytes disturbances
5. Impared venous outflow
6. Injury to the vascular endothelium

**Answers: a, d, e**

1. **(MC) Which of the following reduce the risk of developing DVT?**
2. Anticoagulant medications
3. Calf massage
4. Deep breathing exercises
5. Graduated compression stockings
6. Mobilising

**Answers: a, d, e**

1. **(MC) What are the local signs & symptoms of DVT?**
2. Bruising
3. Heat
4. Pain
5. Redness
6. Swelling

**Answers: c, d, e**

1. **(MC) Which of the following statements accurately describe a potential advantage of the direct oral anticoagulants (apixaban, dabigatran, rivaroxaban) over warfarin in the treatment of DVT?**
2. Adherence with direct oral anticoagulants is 20%–30% better than adherence to warfarin.
3. In case of bleeding, direct oral anticoagulants are more difficult reversed than warfarin.
4. In case of bleeding, direct oral anticoagulants are more easily reversed than warfarin.
5. More patients are able to tolerate the direct oral anticoagulants than warfarin.
6. The onset of anticoagulant activity is more rapid with direct oral anticoagulants when compared to warfarin.

**Answers: b, e**

1. **(SC) An 82-year-old man was admitted to hospital and recently diagnosed with acute DVT. Treatment has been initiated with intravenous unfractionated heparin. Twelve hours later, his aPTT is greater than 150 seconds and he is noted to have bright red blood per rectum. Which of the following is the best course of action in the management of this patient?**
2. Stop heparin therapy and give protamine sulfate via slow IV infusion
3. Stop heparin therapy and give recombinant factor VII
4. Stop heparin therapy and give vitamin K via slow IV infusion
5. Stop heparin therapy for 60 minutes and then reduce infusion rate by 20%
6. Surgery

**Answer: a**

1. **(MC) Deep vein thrombosis usually occurs in the:**
2. Arms
3. Feet
4. Head
5. Pelvis
6. Thigh

**Answers: b, d, e**

1. **(SC) Local signs and symptoms of deep vein thrombosis can include:**
2. Headache, nausea, vomiting
3. Muscle spasms, vertigo, ringing ears
4. Paresis, speech defect, neurological impairment
5. Redness, warmth, tenderness and swelling
6. Shortness of breath, chest pain, coughing blood

**Answer: d**

1. **(SC) A 49-year-old woman is evaluated for a right lower extremity DVT. Medical history is significant for metastatic breast cancer but no previous DVT. Current medications are intermittent chemotherapy for her active breast cancer. Which of the following is the most appropriate management for the long-term therapy of this patient's DVT?**
2. Aspirine
3. Inferior vena cava filter plus unfractionated heparin and warfarin
4. Low-molecular-weight heparin
5. Unfractionated heparin
6. Warfarin

**Answer: c**

1. **(MC) Which staements from the following are false?**
2. A deep vein thrombosis in the lower extremity has a low probability of becoming a pulmonary embolism.
3. A deep vein thrombosis in the lower extremity has a probability of becoming a pulmonary embolism.
4. DVTs tend to mostly occur in the lower extremities.
5. DVTs tend to mostly occur in the upper extremities.
6. Peroneal, posterior tibial, popliteal and superficial femoral veins are most susceptible to DVT.

**Answers: a, d**

1. **(MC) Select all the factors regarding DVT that are included in Virchow's Triad:**
2. Hypocoagulability
3. Atherosclerosis
4. Endothelial damage
5. Stasis of venous blood
6. Excessive coagulability
7. Increased venous blood flow

**Answers: c, d, e**

1. **(SC) A patient is receiving continuous IV Heparin for anticoagulation therapy for the treatment of a DVT. In order for this medication to have a therapeutic effect on the patient, the aPTT level should be:**
2. 0.5-2.5 times the normal value range
3. 2-3 times the normal value range
4. 1.5-2.5 times the normal value range
5. 1-3.5 times the normal value range
6. More than 3 times the normal value range

**Answer: c**

1. **(MC) Disadvantages of unfractionated heparin therapy include the following:**
2. IV administration
3. Platelet activation
4. Requirement for aPTT monitoring for adjusted-dose regimens
5. Short half-life and low bioavailability
6. Variable pharmacokinetics

**Answers: a, b, c, d, e**

1. **(SC) Which of the following conditions do not require DVT prophylaxis?**
2. 32-year-old undergoing inguinal hernia repair.
3. A 55 year old with rectal cancer requiring bowel surgery.
4. A 65 year old with active bleeding.
5. A 78 year old requiring a hip replacement.
6. An 18-year-old female on oral contraception, undergoing an appendectomy.

**Answer: a**

1. **(MC) Which of the following are the most effective for preventing postoperative DVT in patients with a low risk of bleeding and no evidence of renal dysfunction?**
2. Ambulation
3. Aspirin alone
4. Low molecular weight heparin (LMWH)
5. Sequential compression devices (intermittent pneumatic compressions)
6. Warfarin

**Answers: a, c, d**

1. **(MC) A patient undergoes total knee replacement. Select appropriate deep vein thrombosis prophylaxis for this patient and no evidence of renal dysfunction:**
2. Aspirin alone
3. Intermittent pneumatic compression devices
4. Low molecular weight heparin administered subcutaneously
5. Unfractionated heparin infusion
6. Warfarin with a target INR of 1.5 to 2.0

**Answer: b, c**

1. **(SC) Which of the following is the least effective method to prevent deep vein thrombosis?**
2. Early ambulation after surgery
3. Graduated compression stockings
4. Intermittent pneumatic compression
5. Oral administration of Aspirin
6. Use of low molecular weight heparin

**Answer: d**

1. **(SC) A 69-year-old patient undergoes elective left hip replacement without any complications. After the surgery, what is the lenght of DVT prophylaxis?**
2. 24-48 hours
3. Indefinitely
4. Individual decision
5. 3-5 days
6. 7-10 days

**Answer: e**

1. **(MC) A 34 y.o. woman requires repeat lower caesarean section. Last time she had a caesarean section her postoperative course was complicated by postdural puncture headache (following dural puncture with a 16 gauge needle), as well as a deep venous thrombosis. She refuses neuraxial anesthesia. Justify your prophylaxis against deep venous thrombosis for her:**
2. Breastfeeding
3. C-section
4. General anesthesia
5. History of deep venous thrombosis
6. Prolonged immobilization

**Answers: b, c, d**

1. **(MC) Vein thrombosis occurs in patients with a body mass index (BMI) more frequently:**
2. BMI 16–18
3. BMI >41
4. BMI 20–25
5. BMI 26–30
6. BMI 31–40

**Answers: b, d, e**

1. **(SC) High-risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score:**
2. Chronic heart disease
3. Diabetes
4. Fracture of lower limb
5. Heparin associated thrombocytopenia
6. History of venous thrombosis

**Answer: c**

1. **(MC) Which from the following are risc factors for DVT?**
2. Age 20 to 35 years
3. Central venous access
4. Hormone therapy
5. Oral contraceptive 35 years above
6. Pregnancy

**Answers: b, c, d, e**

1. **(MC) In which conditions the intermitent pneumatic compresion is prohibited?**
2. Congestive heart failure
3. Deep vein thrombosis
4. Lower limb ischemic diseases
5. Lower limbs severe edema
6. Pulmonary edema

**Answers: b, c, d**

1. **(MC) What are the basic preventive measures for venous thrombosis?**
2. Avoid dehydration
3. Early mobilisation
4. Less fluids
5. Operate softly
6. Use of a tourniquet

**Answers: a, b**

1. **(MC) What are the common drugs used for DVT prophylaxis?**
2. Aspirine
3. Dipiridamol
4. Direct oral anticoagulants
5. Low-molecular heparin
6. Vitamin K antagonist

**Answers: c, d, e**

1. **(MC) High-risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. Family history of thrombosis
3. Hip/knee joint replacement
4. Laparoscopic surgery
5. Plaster immobilization
6. Spinal injury

**Answers: b, e**

1. **(MC) Moderate-risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. Age≥75 y.o.
3. Central venous indwelling catheter
4. Heparin-induced thrombocytopenia
5. History of DVT/PE
6. Hormone replacement therapy

**Answers: a, c, d**

1. **(MC) Moderate-risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. Arthroscopic surgery
3. Family history of thrombosis
4. Open surgery (until 45 min.)
5. Plaster cast
6. Thrombophilia

**Answers: b, e**

1. **(MC) Moderate-risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. Arthroscopic surgery
3. Immobilizing plaster cast
4. Ischemic stroke
5. Thrombophilia
6. VTE medical history

**Answers: a, b**

1. **(MC) Low-risk factors for thrombus venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. Acute spinal cord injury
3. BMI >25
4. Patient confined to bed <72 hours
5. Pneumonia
6. Sepsis

**Answers: b, c, d, e**

1. **(MC) Low-risk factors for thrombus venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. Acute miocardial infarction
3. Congestive heart failure
4. History of venous thromboembolism
5. Lupus
6. Varicose veins

**Answers: a, b, e**

1. **(MC) Low-risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. BMI>25kg/m2
3. Laparoscopic surgery (>45 min.)
4. Oral contraceptives
5. Postpartum period
6. Stroke (<1 month)

**Answers: a, c, d**

1. **(SC) For a patient with a high risk of bleeding the best choises of DVT prophylaxis include:**
2. Mechanical prophylaxis
3. Low-molecular-weight heparins
4. Unfractionated heparin
5. Direct oral anticoagulants
6. Warfarin

**Answer: a**

1. **(MC) High-risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. ≥75 years
3. Elective major lower extremity arthroplasty
4. Family history of thrombosis
5. Minor surgery
6. Pneumonia

**Answers: a, b, c**

1. **(MC) High-risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. COPD
3. Elevated serum homocysteine
4. Major surgery >45 min, laparoscopic >45 min, or arthroscopic
5. Multiple trauma
6. Positive lupus anticoagulant

**Answers: b, d, e**

1. **(MC) High-risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. 61-74 years
3. History of inflammatory bowel disease
4. Other congenital or acquired thrombophilia
5. Present or previous malignancy
6. Stroke

**Answers: c, e**

1. **(MC) Moderate-risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. 61-74 years
3. COPD
4. Major surgery>45 min, laparoscopic >45 min, or arthroscopic
5. Pneumonia
6. Present or previous malignancy

**Answers: a, c, e**

1. **(MC) Low -risk factors for venous thromboembolism and DVT after surgery, according** to **Caprini Score**:
2. 41-60 years
3. Acute spinal cord injury causing paralysis
4. Elective major lower extremity arthroplasty
5. History of DVT/PE
6. Varicose veins

**Answers: a, e**

1. **(MC) High-risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. Central venous access
3. Elective arthroplasty
4. Hip, pelvis or leg fracture
5. History of unexplained or recurrent spontaneous abortion
6. Varicose veins

**Answers: b, c**

1. **(MC) Low -risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. Acute myocardial infarction
3. Family history of VTE
4. Oral contraceptives or hormone replacement
5. Sepsis
6. Stroke (<1 month)

**Answers: a, c, d**

1. **(MC) Low -risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. Acute spinal cord injury
3. Arthroscopic surgery
4. Heparin-induced thrombocytopenia
5. History of venous thromboembolism
6. Pneumonia

**Answers: b, e**

1. **(MC) Low -risk factors for venous thromboembolism and DVT after surgery, according to Caprini Score**:
2. Age ≥75 years
3. Hip, pelvis or leg fracture
4. History of inflammatory bowel disease
5. Postpartum
6. Pregnancy

**Answers: c, d, e**

Advanced perioperative monitoring. Elements of computational medicine. (V.Iapascurta)

**1. (SC) The anesthesiologist is performing preanesthesia examination of a 55-year-old man who is being prepared for a scheduled orthopedic intervention on the left foot. He is currently taking no medications. His pulse is 80/min, and blood pressure is 165/95 mm Hg. Physical examination shows no other abnormalities except the place of intended surgery. The presence of which of the following mechanisms is most likely to increase this patient's blood pressure further?**

a. Decreased cardiac output b. Decreased pulse c. Decreased stroke volume d. Increased peripheral vascular resistance e. Increased pulmonary artery pressure

**Answer: d**

**2. (SC) A 59-year-old man is admitted to an Intensive Care department with a 4-day history of nausea, vomiting, and diarrhea. He also has been confused and agitated during this period. He has a history of mild hypertension. His current medication is a diuretic. His temperature is 37°C, pulse is 108/min, respirations are 26/min, and blood pressure is 70/47 mm Hg. Physical examination shows delayed capillary refill of the lips and nail beds and cool extremities. His oxyhemoglobin saturation in a central vein is 60% (N=>75). Which of the following types of shock are these findings most consistent with?**

a. Cardiogenic

b. Distributive

c. Hypovolemic

d. Obstructive

e. Septic

**Answer: c**

**3. (MC) Choose non-invasive methods of measuring Cardiac Output:**

a. Thermodilution method by Swan-Ganz catheter

b. PiCCO Pulse Pressure method

c. FloTrac method based on pulse contour analysis

d. Thoracic Electric Bioimpedance (TEB)

e. Doppler Ultrasound based methods

**Answers: d, e**

 **4. (SC) Choose the maximum invasive method of measuring Cardiac Output:**

a. Thermodilution method by Swan-Ganz catheter

b. PiCCO Pulse Pressure method

c. FloTrac method based on pulse contour analysis

d. Thoracic Electric Bioimpedance (TEB)

e. Doppler Ultrasound based methods

**Answer: a**

**5. (MC) Choose the minimum invasive methods for measuring Cardiac Output:**

a. Thermodilution method by Swan-Ganz catheter

b. PiCCO Pulse Pressure method

c. FloTrac method based on pulse contour analysis

d. Thoracic Electric Bioimpedance (TEB)

e. Doppler Ultrasound based methods

**Answers: b, c**

**6. (SC) Choose the correct normal range for Cardiac Output (CO):**

a. 7 - 10 liters/minute

b. 4.5 – 8 liters/minute

c. 4.5 – 8 liters/minute/m2

d. 2 - 4 liters/minute

e. 2.7 – 4 liters/minute/m2

**Answer: b**

**7. (SC) Choose the correct normal range for Cardiac Index (CI):**

a. 7 - 10 liters/minute

b. 4.5 – 8 liters/minute

c. 4.5 – 8 liters/minute/m2

d. 2 - 4 liters/minute

e. 2.7 – 4 liters/minute/m2

**Answer: e**

**8. (SC) Choose the normal value for mixed venous blood oxygen saturation (SvO2):**

a. 60 %

b. > 75 %

c. < 60 %

d. 50 %

e. < 50%

**Answer: b**

**8. (SC) Choose the lower limit of the normal range for arterial blood oxygen saturation**

**(SaO2):**

a. 90 %

b. 75 %

c. 60 %

d. 50 %

e. 98 %

**Answer: a**

**9. (MC) Choose the CORRECT statements concerning Cardiac Index (CI):**

a. it has the same meaning as Cardiac Output (CO)

b. it is used to count for inter-individual variability of Cardiac Output

c. it is calculated by dividing the Cardiac output to the Body Surface Area (= CO/BSA)

d. it is measured in liters per minute (liters/minute)

e. it is measured in liters per minute per square meter (liters/minute/m2)

**Answers: b, c, e**

**10. (MC) Choose the invasive methods of measuring cardiac output:**

a. Thermodilution method by Swan-Ganz catheter

b. PiCCO Pulse Pressure method

c. FloTrac method based on pulse contour analysis

d. Thoracic Electric Bioimpedance (TEB)

e. Doppler Ultrasound based methods

**Answers: a, b, c**

 **11. (MC) Choose three monitoring techniques used for neuromonitoring:**

a. Impedance measurement

b. Electroencephalography (EEG)

c. Electromyography (EMG)

d. Ultrasonographic techniques

e. Evoked potentials

**Correct answers: b, c, e**

**12. (MC) Choose three monitoring techniques used for monitoring the depth of general anesthesia:**

a. Bispectral Index monitor (BIS)

b. Magnetic resonance imaging (MRI)

c. Ultrasonographic techniques

d. Auditory evoked potential monitor (AEP)

e. Patient state analyzer (PSA)

**Answers: a, d, e**

**13. (SC) Choose the mechanism techniques used for monitoring the depth of general anesthesia:**

a. Postsynaptic potentiation

b. Receptor activation mechanism

c. Receptor blocking mechanism

d. Burst suppression mechanism

e. Concurrent inhibition mechanism

**Answer: d**

**14 (MC). Choose the correct statement concerning neuromuscular function monitoring**

a. It is a technique for evaluating the neuromuscular block

b. It provides information about smooth muscles strength

c. It is used to confirm the adequacy of recovery from a neuromuscular block

d. It provides information concerning respiratory muscles strength only

e. It is used in the intensive care unit only

**Answers: a, c**

**15 (MC). Choose the statements concerning a model, as a computational medicine concept:**

1. A mathematical formula that describes a function
2. Simplified representation of reality
3. Highlights important aspects at the price of ignoring other aspects
4. Is the most important concept in the field of Artificial Intelligence
5. For doctors it is useless

**Answers: b, c**

**16 (MC) Choose common types of models, as a computational medicine concept:**

a. Integrated field sparsity models (IFSM)

b. Equation based models (EBM)

c. Statistical models (SM)

d. System Dynamics Models (SDM)

e. Agent Based Models (ABM)

**Answers: b, c, d, e**

**17. (SC) Choose the most common type of models used in modern pharmacodynamics:**

a. Integrated field sparsity models (IFSM)

b. Probabilistic Models (PM)

c. Statistical models (SM)

d. System Dynamics Models (SDM)

e. Agent Based Models (ABM)

**Answer: d**

**18. (SC) Choose the meaning of the term “Artificial Intelligence”:**

a. A branch of highest mathematics

b. The possibility of computer to emulate human reasoning process

c. Hardware with high computational possibilities

d. Non-medical computer applications

e. Modern mobile devices

**Answer: b**

**19. (SC) Choose the first Artificial Intelligence application in anesthesia:**

a. Perceptron algorithm, 1958

b. Artificial neural networks, 1943

c. Bickford’s anesthesia system, 1950

d. SedAsys, 2006

e. McSleep, 2008

**Answer: c**

**20. (MC) Choose artificial intelligence applications for anesthesia practice:**

a. Bickford’s anesthesia system, 1950

b. Perceptron algorithm, 1958

c. SedAsys, 2006

d. McSleep, 2008

e. Kepler Intubation System, 2011

**Answers: a, c, d, e**

**21. (SC) Choose the most important determinant for low blood pressure in a patient with hypovolemic shock, according to the equation MAP = (CO \* SVR) + RAP, where RAP is right atrial pressure, CO denotes cardiac output, SVR stands for systemic vascular resistance:**

a. Low RAP

b. Low tidal volume

c. Low CO

d. Low SVR

e. Short capillary refill time

**Answer: a**

**22. (SC) Choose the most important determinant for low blood pressure in a patient with vasogenic (or distributive) shock, according to the equation MAP = (CO \* SVR) + RAP, where RAP is right atrial pressure, CO denotes cardiac output, SVR stands for systemic vascular resistance:**

a. Low RAP

b. Low tidal volume

c. Low CO

d. Low SVR

e. Short capillary refill time

**Answer: d**

**23. (SC) Choose the most important determinant for low blood pressure in a patient with cardiogenic shock, according to the equation MAP = (CO \* SVR) + RAP, where RAP is right atrial pressure, CO denotes cardiac output, SVR stands for systemic vascular resistance:**

a. Low RAP

b. Low tidal volume

c. Low CO

d. Low SVR

e. Short capillary refill time

**Answer: c**

**24. (MC) Choose the CORRECT statements concerning invasive blood pressure monitoring in clinical setting:**

a. It requires the placement of a pressure sensor in the aorta

b. It requires a peripheral artery catheterization

c. The most common artery for a catheter placement is the radial artery

d. It is more accurate than the oscillometric method

e. It is less accurate than the oscillometric method

**Answers: b, c, d**

**25. (MC) Choose the CORRECT statements concerning Mean Arterial Pressure (MAP):**

a. It is calculated as the pressure in all arteries divided by the number of arteries

b. It is the time-averaged pressure in the major arteries

c. It is the area under the arterial pressure wave, divided by the duration of the cardiac cycle

d. MAP calculated by the formula MAP = 1/3 Systolic BP + 2/3 Diastolic BP is very accurate

e. The calculation of MAP (by the formula in p.‘d’ above) is not advised in the intensive care unit

**Answers: b, c, e**

**26. (MC) Choose the ERRONEOUS statements concerning Mean Arterial Pressure (MAP):**

a. It is calculated as the pressure in all arteries divided by the number of arteries

b. It is the time-averaged pressure in the major arteries

c. It is the area under the arterial pressure wave, divided by the duration of the cardiac cycle

d. MAP calculated by the formula MAP = 1/3 Systolic BP + 2/3 Diastolic BP is very accurate

e. The calculation of MAP (by the formula in p. ‘d’ above) is highly recommended in the intensive care unit

**Answers: a, d, e**

**27. (SC) Choose the CORRECT statement concerning Pulmonary Artery Catheter:**

a. It is highly invasive

b. It is non-invasive

c. It is less accurate than any other similar technique

d. It does not require any additional measuring devices/techniques

e. it does not need any specific training/knowledge

**Answer: a**

 **28. (MC) Choose the correct statements concerning Pulmonary Artery Catheter:**

a. It is highly invasive

b. It is non-invasive

c. It is less accurate than any other similar technique

d. It requires additional measuring devices/techniques

e. It is used in selective cases only because of potential complications

**Answers: a, d, e**

**29. (MC) Choose chemical markers used to evaluate tissue oxygenation:**

a. Blood lactate level

b. Natriuretic factor

c. Arterial base deficit

d. Myosin

e. Troponin

**Answers: a, c**

**30. (MC) Choose markers used to evaluate tissue oxygenation:**

a. Oxygen uptake (VO2)

b. Blood lactate level

c. Arterial base deficit

d. Mixed venous blood oxyhemoglobin saturation (SvO2)

e. Partial pressure of oxygen in the alveoli (PAO2)

**Answers: a, b, c, d**

**31. (MC) Choose the possible goals of perioperative neuromonitoring:**

1. To alert the surgeon and anesthesiologist to impending injury
2. To allow the modification of management in time to prevent permanent damage
3. To map areas of the nervous system in order to guide management
4. To substitute the drug induced consciousness control
5. Monitoring the depth of anesthesia

**Answers: a, b, c, e**

**32. (MC) Choose the techniques used for neuromonitoring:**

1. Electroencephalography (EEG),
2. Electromyography (EMG),
3. Evoked potentials (EPs): somatosensory, auditory, motor
4. Electrocardiography (ECG),
5. EndTidal CO2 (ETCO2)

**Answers: a, b, c**

**33. (SC) Choose the most important factor that influences blood flow resistance (according to Poiseuille equation: ‘delta’p = 8 \* ‘miu’ \* L \* Q / 4 \* ’pi’ \* R ^4) :**

a. Blood viscosity

b. Length of blood vessel

c. Vessel diameter

d. Blood pressure

e. Blood flow velocity

**Answer: c**

**34. (SC) Choose the component by which the equations for oxygen delivery (DO2) and oxygen consumption (VO2) differ:**

a. Cardiac output (CO)

b. Hemoglobin level (Hgb)

c. Huffner constant (~ 1.34 mlO2)

d. Arterial blood oxygen saturation (SaO2)

e. Venous blood oxygen saturation (SvO2)

**Answer: e**

**35. (MC) Choose the parameters used for cardiovascular function monitoring in ICUs:**

a. Cardiac output (CO)

b. Stroke volume (SV)

c. Tidal volume (TV)

d. Mean arterial pressure (MAP)

e. Pulmonary capillary wedge pressure (PCWP)

**Answers: a, b, d, e**

**36. (SC) Choose the CORRECT statement concerning central venous pressure (CVP):**

a. It is the pressure in the vena cava superior

b. It is the pressure in the vena cava inferior

c. It is the pressure in the venous system near to the heart

d. It is equivalent to intrathoracic pressure

e. It is equivalent to left ventricle filling pressure

**Answer: c**

**37. (MC) Choose the CORRECT statements concerning capnometry:**

a. It is used to measure O2 concentration in alveoli

b. It is used to measure CO2 concentration in alveoli

c. It is a method for measuring CO2 in the exhaled air

d. It is useful during cardiopulmonary resuscitation

e. It can be used for the confirmation of proper tracheal tube placement

**Answers: c, d, e**

**38. (MC) Choose the continuous monitoring techniques routinely used in a modern ICU:**

a. Cardiac output (CO) measurement

b. Electrocardiography (ECG)

c. Electroencephalography (EEG)

d. Pulse oximetry

e. Magnetic resonance imaging (MRI)

**Answers: a, b, c, d**

**39. (MC) Choose the CORRECT statements concerning intraoperative monitoring:**

a. It can be ignored during local/regional anesthesia

b. SpO2 monitoring is mandatory

c. It depends solely on the duration of surgery

d. The physical presence of an anesthesiologist is optional

e. The 2nd ECG lead is the most recommended

**Correct answers: b, e**

**40. (MC) To increase the blood flow to a hypoxic tissue using the equation: Flow = (P2 – P1) / R one should:**

a. Increase the pressure difference

b. Decrease the pressure difference

c. Increase vascular resistance

d. Decrease vascular resistance

e. None of the above

**Answers: a, d**

**41. (MC) Choose the CORRECT statements concerning neuromuscular function monitoring:**

a. It involves the electrical stimulation of a motor nerve and monitoring the response of the muscle(s)

b. It is used to confirm the adequacy of recovery after the administration of neuromuscular blocking agents

c. It is used for research purpose only

d. It is used for avoiding postoperative residual curarization

e. It is used only in case of depolarizing neuromuscular blocking agents

**Answers: a, b, d**

**42. (MC) Choose the CORRECT statements concerning neuromuscular function monitoring:**

a. It is a method used to confirm brain death

b. It is used in case of non-depolarizing neuromuscular blocking agents

c. It is used for avoiding postoperative residual curarization

d. It is used for research purpose only

e. It is used only in the operating room

**Answers: b, c**

**43. (MC) Choose the CORRECT statements concerning pulse oximetry:**

a. It is an appropriate substitute for blood gases

b. It is an accurate substitute for blood oxygen content

c. Erroneously low readings can be caused by hypoperfusion

d. The use of vasoconstrictors can influence the SpO2 readings

e. Movement (e.g. shivering) can influence SpO2 readings

**Answers: c, d, e**

**44. (MC) Choose FALSE statements concerning pulse oximetry:**

a. It is an appropriate substitute for lung ventilation

b. It is an accurate substitute for blood oxygen content

c. Erroneously low readings can be caused by hypoperfusion

d. Movement (e.g. shivering) can influence SpO2 readings

e. It can be used to determine the metabolism of oxygen

**Answers: a, b, e**

**45. (MC) Choose the CORRECT statements concerning pulse oximetry and oxygen metabolism:**

a. SpO2 is a complete measure of circulatory oxygen sufficiency

b. Insufficient blood flow or anemia can lead to tissue hypoxia despite high SpO2

c. Cyanide poisoning (beginning stages) can generate high SpO2 readings

d. Pulse oximetry can determine the amount of oxygen being used by a patient

e. A pulse oximeter displays the percentage of hemoglobin that is loaded with oxygen

**Answers: b, c, e**

**46. (MC) Choose the FALSE statements concerning pulse oximetry:**

a. A pulse oximeter is a monitoring device that indirectly monitors the oxygen saturation of a patient's blood

b. Its components include: a pair of light-emitting diodes, a photodiode (as receiver) and a processor

c. It is used only in the operating room

d. It can produce a photoplethysmogram along with oxygen saturation

e. Pulse oximetry can determine the amount of oxygen being used by a patient

**Answers: c, e**

**47. (SC) Choose the most useful parameter in monitoring patient’s intravascular volume status:**

a. Blood electrolytes

b. Heart rate

c. Urine electrolytes

d. Central venous pressure (CVP)

e. Urine output

**Answer: d**

**48. (MC) Choose the FALSE statements concerning oxygen metabolism in the adult human brain:**

a. Cerebral oxygen consumption is approximately 3.5 ml per 100 g per minute

b. Brain accounts for about 20% of the total oxygen consumption

c.Partial pressure of O2 less than 60 mmHg in the arterial blood causes cerebral vasoconstriction

d. Acute reduction of blood flow for 10-15 seconds results in loss of consciousness

e. The brain can store an equivalent of up to 20% of oxygen calculated on brain volume

**Answers: c, e**

**49. (MC) Choose the FALSE statements concerning tissue oxygenation:**

a. Oxygen delivery (DO2) depends on blood flow and arterial oxygen content

b. Arterial oxygen content is influenced by hemoglobin level, SaO2 and dissolved O2

c. In hyperbaric oxygenation less than 2% of oxygen is transported as dissolved in plasma

d. The amount of oxygen consumed by tissue is solely influenced by oxygen delivery (DO2)

e. Tissue oxygenation (by pulse oximetry) can be used for sleep apnea screening

**Answers: c, d**

**50. (MC) Choose the CORRECT statements concerning tissue oxygenation:**

a. Tissue oxygenation (by pulse oximetry) can be used for sleep apnea screening

b. Oxygen delivery (DO2) depends on blood flow and arterial oxygen content

c. Under normal conditions up to 98% of oxygen is transported by hemoglobin

d. In certain cases an appropriate oxygen delivery can coexist along with low oxygen consumption

e. In hyperbaric oxygenation less than 2% of oxygen is transported as dissolved in plasma

**Answers: a, b, c, d**

Patients safety (R.Baltaga)

**1. (SC) Who is responsible for patient safety?**

* 1. Doctors
	2. Nurses
	3. Patients
	4. Everyone
	5. None of the above

**Answer:** **d**

**2. (SC) What is the most effective way to prevent the spread of infection by healthcare providers?**

* 1. Covering the mouth when coughing
	2. Washing hands
	3. Wearing a face mask
	4. Avoiding sharing drinks or food
	5. Wearing shoe covers

**Answer:** **b**

**3. (SC) Which of these safety measures should be a standard procedure for hospital doctors and nurses?**

a. Washing hands before treating a patient

b. Checking the patient's I.D. bracelet before giving any medicine

c. Thoroughly explaining the reasons for any test or treatment

d. All of the above

e. None of the above

**Answer:** **d**

**4. (SC) Which of the following statements is true?**

a. Hand washing helps prevent infection.

b. Using hand sanitizer (liquid, gel or foam) helps prevent infection.

c. Getting a flu shot helps prevent disease and infection.

d. All of the above

e. None of the above

**Answer:** d

**5. (SC) During Sign – In in the WHO Surgical Safety Checklist the following data are stipulated except one:**

1. Name of the patient
2. Known allergies
3. Airway difficulties
4. Procedure site
5. Patient’s occupation and marital status

**Answer:** **e**

**6. (SC) Patients have certain rights when they receive health care. Which of the following is not a right?**

a. The right to be informed about the care

b. The right to a gourmet meal.

c. The right to safe care.

d. The right to have pain treated.

e. The right to know when something goes wrong with care

**Answer:** **b**

**7.** **(SC) An Adverse Event in health care is:**

1. an incident in which a patient is harmed.
2. an incident, but patient is not harmed.
3. it can happen only when treated by an inexperienced staff
4. it can happen only in anaesthesia
5. it can happen only in elderly patients

**Answer:** **a**

8. **(SC) Examples of patient safety barriers are all EXCEPT:**

1. Complexity,
2. lack of clear measures,
3. persistent fear,
4. hierarchical authority,
5. efficient leadership

**Answer:** **e**

**9. (SC) Which of the following is the most likely root cause of medication errors in health care entities?**

1. Carelessness of nurses
2. Illegible physician handwriting
3. Look-alike, sound-alike drugs
4. Manual medication delivery systems
5. System failure

**Answer:** **e**

**10. (SC) Patient identifiers should be used before:**

 a. drawing blood or obtaining other specimens

 b. administering medications

c. transporting a patient to a test or procedure

d. all of the above

e. None of the above

**Answer:** d

**11. (SC) The MOST common type of medication error is:**

a. Wrong drug

b. Wrong route of administration

c. Administering improper dose

 d. Wrong patient

 e. wrong timing

**Answer:** **c**

 **12. (SC) What type of medication error is a prescription for a patient with known allergy or intolerance?**

 a. Prescription error

 b. Transcription error

c. Dispensing error

 d. Administration error

e. Monitoring error

 **Answer:** **a**

**13. (SC) What type of medication error is the use of unapproved abbreviations?**

a. Prescription error

b. Transcription error

c. Dispensing error

d. Administration error

e. Monitoring error

**Answer: b**

**14. (SC) What type of medication error is misunderstanding of intended order?**

a. Prescription error

b. Transcription error

c. Dispensing error

d. Administration error

e. Monitoring error

**Answer:b**

**15. (SC) What type of medication error is an incorrect drug or dose sent to the unit?**

a. Prescription error

b. Transcription error

c. Dispensing error

d. Administration error

e. Monitoring error

**Answer: c**

**16. (SC) What type of medication error is incorrect formulation or dosage form?**

a. Prescription error

 b. Transcription error

c. Dispensing error

d. Administration error

e. Monitoring error

 **Answer:** **c**

**17. (SC) What type of medication error is incorrect calculation of dose to be given?**

a. Prescription error

b. Transcription error

c. Dispensing error

d. Administration error

e. Monitoring error

 **Answer:** d

**18. (SC) What type of medication error is forgetting to give the patient the medication?**

a. Prescription error

 b. Transcription error

c. Dispensing error

d. Administration error

e. Monitoring error

**Answer:** **d**

**19. (SC) What type of medication error is an incorrect administration technique or route?**

 a. Prescription error

b. Transcription error

c. Dispensing error

d. Administration error

e. Monitoring error

**Answer: d**

**20. (SC) What type of medication error is unauthorized substitution of medications?**

a. Prescription error

b. Transcription error

c. Dispensing error

d. Administration error

e. Monitoring error

**Answer: d**

**21. (SC) What type of medication error is inadequate documentation and/or reporting of response to medication?**

a. Prescription error

b. Transcription error

c. Dispensing error

d. Administration error

 e. Monitoring error

 **Answer:** **e**

**22. (SC) What type of medication error is premature or delayed documentation of medication administration?**

1. b. Transcription error
2. Dispensing error
3. Administration error
4. Monitoring error
5. Documentation error

**Answer:** **e**

**23. (SC) What type of medication error is wrong dosage administration?**

a. prescription error

b. transcription error

c. dispensing error

d. administration error

e. monitoring error

**Answer:** **d**

**24. (SC) Choose the correct prescription:**

a. Digoxin 0.25 mg once daily, orally

b. Midazolam 1.0 mg intravenousely, once

c. Cipro 500 mg every 6 hours p/o, for 6 days

d. Iron tabs, daily

e.AZT 100 mg po

**Answer: a**

**25. (SC) Studies suggest that MOST preventable drug –related injuries occur:**

a. at patient’s home

b. in outpatients

c. in hospitals

d. in long- term care settings

**Answer:** **d**

**26. (SC) What type of medication error is the administration of the drug to a wrong patient?**

a. prescription error

b. transcription error

c. dispensing error

d. administration error

e. monitoring error

**Answer:** **d**

**27. (SC) What type of medication error is under- or everdosing?**

a. prescription error

b. transcription error

c. dispensing error

d. administration error

e. monitoring error

**Answer:** **a**

**28. (SC) What type of medication error is a duplicate dose given?**

a. prescription error

b. transcription error

c. dispensing error

d. administration error

e. monitoring error

**Answer:d**

**29. (SC) What type of medication error is omission?**

a. prescription error

b. transcription error

 c. dispensing error

d. administration error

e. monitoring error

 **Answer:** **b**

**30. (SC) Choose the wrong statement with regard to iv infusion? (CS)**

a. Every iv medication has the same rate of infusion

b. Some medications need to be infused slowly to monitor the effect on the patient

c. The use of syringe pump gives a more precise dosage

d. Potasium chloride should be given in a central vein

e. The external jugular vein can be used for central access.

**Answer:** **a**

**31. (SC) The majority intravenous medication errors are due to:**

1. medications administered too slowly
2. wrong dosage
3. medications administered too fast
4. wrong medication
5. wrong patient

**Answer:** **c**

**32. (SC) What type of medication error is documenting in the wrong patients file?**

1. prescription error
2. transcription error
3. administration error
4. monitoring error
5. documentation error

**Answer: e**

**33. (SC) What type of medication error is giving drug at the wrong time?**

a. prescription error

b. transcription error

c. dispensing error

d. administration error

e. monitoring error

 **Answer:** d

**34. (SC) The correct statement is:**

a. a nurse should be familiar with drugs used

b. doctor should use abbreviations as frequent as possible

c. syringe labeling is not recommended in reducing drug errors

d. potassium chloride should be kept on shelf with the rest of medication

e. A nurse should just hang the iv stand and start iv infusion and leave the room

**Answer:** **a**

**35. (SC) The position, when the patient is lying on their back, with the knees straight and arms at the sides, is:**

a. Supine

b. Sims

c. Prone

d. Lithotomy

e. dorsal recumbent

**Answer:** a

**36. (SC) The position of the patient lying on the abdomen, with the knees straight, the forearms may be under the head, is:**

a. Supine

b. Sims

c. Prone

d. Lithotomy

e. dorsal recumbent

**Answer:** **c**

**37. (SC) The patient lying on the back, with the knees bent and feet flat on the examination table; arms are at sides, is:**

a. Supine

b. Sims

c. Prone

d. Lithotomy

e. dorsal recumbent

**Answer:** **e**

**38. (SC) The position of the .patient lying on the back, with the knees bent, thighs apart, and feet resting in stirrups, is:**

a. Supine

b. Sims

c. Prone

d. Lithotomy

e. dorsal recumbent

**Answer:** **d**

**39. (SC) The patient's head, chest, and knees are flat against the examining table; the knees are bent and the weight is resting mainly on the knees and chest.Identify the position:**

a. knee – chest position

b. Supine

b. Sims

c. Prone

d. Lithotomy

**Answer:** **a**

**40. (SC) The patient lies on the back, with the knees straight and arms at sides, then with the head lower than the trunk and the knees straight.Identify the position:**

a. Trendelemburg

b. Supine

b. Sims

c. Prone

d. Lithotomy

**Answer:** **a**

**41. (SC) The patient sits on the examining table, with the knees bent; the feet are often supported on a footrest. The position is:**

1. sitting
2. Supine
3. Sims
4. Prone
5. Lithotomy

**Answer:** **a**

**42. (SC) The patient is sitting, with the legs extended and the trunk at a 90-degree angle; the back is supported by the examining table. Sometimes the knees are elevated.The position is:**

1. Fowler's Position
2. Trendelemburg
3. Supine
4. Sims
5. Prone

**Answer:** **a**