

***Title of Lecture: Pharmacology of CNS***

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***Sheet no: 19***

***Refer to slide no. :***

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CNS   
is an essential part of the body, it controls many physiological functions important to keep the person alive “if the spinal cord is cut above C4 death is certain”.  
  
slide #2  
CNS stimulant drugs use are usually restricted to overcome the action of over-dosage of depressors .  
but some stimulants are used .. like xanthine derivatives which are used to treat bronchial asthma.  
  
slide #3  
analgesics is very important in all medical fields because it’s associated with pain which is a common symptom of diseases , for example appendicitis pain “the solution is removal of the appendix and this can be associated with postoperative complications”.  
- usually if a person develops fever we use antibiotics , if he develops abdominal pain we use antispasmatics or analgesics , if he develops diarrhea we use anti-diarrheal agents.   
- so analgesics are used to remove pain as a symptom not the disease causing it.  
-hypnotics : drugs which lead to sleep .  
-sedatives : are anti-anxiety agents “used for treatment of psychiatric diseases like schizophrenia”.  
-general anesthetics : drugs used to put patient on complete unconsciousness   
-antidepressants : drugs used to treat the disease “depression”  
-anticonvulsants :drugs used to manage epilepsy.  
  
slide #5  
“the doctor said that he won’t bring questions about pain definition and pathophysiology and types of pain in the exam but he said it in a tone that I didn’t like so ….. do whatever you see best” .  
  
slide #6   
acute pain is usually easy to manage while chronic pain is difficult to treat “and usually associated with cancers”.  
  
slide #7  
perception of pain is attained by reaching of the stimulant to the cortex of the brain.  
  
slide #9   
visceral pain can be felt as it is radiating to other places “radiating pain” .. like a person with peptic ulcer who feels pain in the chest “and this may cause confusion ,because the person might think that he has an ischemic heart disease where in fact he has an ulcer with radiating pain”.  
  
slide #10-#12  
when you have a trauma in a specific part of your body ,certain mediators accumulate at site of injury and the act defensively to counter act the trauma “the mediators are like prostaglandins , leukotrienes ..etc” then nociceptor nerves at that part will be stimulated “if the injury was acute but if it is chronic the neuropathic nerves will be stimulated” following this stimulation the signal will be transferred to the spinal cord “which is a relay station in the path of the nerve to reach the brain” ,then release of many neurotransmitters will occur ,mainly NE and serotonin , then they will stimulate certain afferent neurons which will transfer the signal to the thalamus , then the signal will be transmitted to the cortex and the perception of pain occurs.   
Following this signal “when it reaches the cortex” the body will start to modulate its tissues to produce certain endogenous opioids “that have some analgesic effects” to modify the severity of the pain.  
These opioids include enkephalins “met-enkephalin and leu-enkephalin” and beta-endorphins.  
There are great individual variations in the quantity that is produced from these opioids “and this can explain the difference between individuals of how severe do they feel the pain”.  
Usually individuals producing high amounts of opioids feel less pain compared to individuals producing low amounts of opioids.  
These opioids interact with “opioid receptors” which also are major receptors for morphine and analgesics “there are a lot of types of these receptors”.  
  
slide #16  
classification of pain into “mild, moderate and severe” is important because it determines the type of analgesics to be used “narcotic and non-narcotic”.  
  
slide #17  
we shouldn’t rush into using anti-anxiety drugs if the anxiety is due to pain because if remove the pain the anxiety will be removed “and this applies to the other accompanying symptoms of pain”.  
  
slide #18  
there are no signs for pain but the signs that may appear are due to the disease itself.  
  
slide #19   
decrease threshold of pain means that the feeling and severity of pain will be increased.  
  
slide #20  
chronic neuropathic pain usually needs psychotherapy and anti-depressants to be removed.  
  
slide #22   
non-narcotic analgesics are not affective in severe pain “with few exceptions”   
they have anti-inflammatory effect but not anti-bacterial  
they have antipyretic effect, so we can use them in treatment of elevated body temperature.  
  
slide #23  
narcotic analgesics are restricted in use and they need restricted prescriptions from the doctor so the person can by them ,because they lead to addiction.