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The most recent and last SIWES experience had been just as impactful as the first. With a kind, understanding and extensively knowledgeable Doctor John Lucy Africa as my supervisor, I was opportune to be exposed to many critical exercises- both theory and practical- in the field of Pharmacology.

Over my three month stay at the National Institute for Pharmaceutical Research and Development (NIPRD) and under the tutelage of Doctor John Lucy Africa, I have learned of the following;

1. Parkinson’s Disease; PD is a progressive neurodegenerative illness characterized by tremor, muscular rigidity, bradykinesia (slowness of movement), and postural imbalance. The incidence of PD is estimated to be about 1% in the general population older than 60 years of age. Although characterized as a neuromuscular disorder, dementia also occurs at a much greater rate in PD patients over the normal age-matched population. Although the etiology of PD remains unknown, several factors appear to play a role, including the aging process, environmental chemicals, oxidative stress, and genetic aspects.   
   The first significant breakthrough in the treatment of PD came about with the introduction of high-dose levodopa. Fahn18 referred to this as a revolutionary development in treating parkinsonian patients. The rationale for the use of levodopa for the treatment of PD was established in the early 1960s. Parkinsonian patients were shown to have decreased striatal levels of DA and reduced urinary excretion of DA. Since then, levodopa has shown to be remarkably effective for treating the symptoms of PD.19 Because of enzymatic action of MAO-A in the gastrointestinal (GI) tract and AADC in the periphery, only a small percentage (1%–2%) of levodopa is delivered into the CNS.
2. Anti-Diarrheal Agents; Antidiarrheal agents may be used safely in patients with mild to moderate acute diarrhea. However, these agents should not be used in patients with bloody diarrhea, high fever, or systemic toxicity because of the risk of worsening the underlying condition. They should be discontinued in patients whose diarrhea is worsening despite therapy.  
   *Loperamide* is a nonprescription opioid agonist that does not cross the blood-brain barrier and has no analgesic properties or potential for addiction. Tolerance to long-term use has not been reported. It is typically administered in doses of 2mg taken one to four times daily.  
   Conjugated bile salts are normally absorbed in the terminal ileum. Disease of the terminal ileum such as Crohn’s disease or surgical resection leads to malabsorption of bile salts, which may cause colonic secretory diarrhea. The bile salt-binding resins cholestyramine, colestipol, or colesevelam, may decrease diarrhea caused by excess fecal bile acids. These products come in a variety of powder and pill formulations that may be taken one to three times daily before meals
3. NSAIDS(Pharmacodynamics/Pharmacokinetics); NSAID anti-inflammatory activity is mediated chiefly through inhibition of prostaglandin biosynthesis. Various NSAIDs have additional possible mechanisms of action, including inhibition of chemotaxis, down-regulation of interleukin-1 production, decreased production of free radicals and superoxide, and interference with calcium-mediated intracellular events. Aspirin irreversibly acetylates and blocks platelet cyclooxygenase, while the non-COX-selective NSAIDs are reversible inhibitors. Selectivity for COX-1 versus COX-2 is variable and incomplete for the older NSAIDs, but selective COX-2 inhibitors have been synthesized. The selective COX-2 inhibitors do not affect platelet function at their usual doses. In testing using human whole blood, aspirin, ibuprofen, indomethacin, piroxicam, and sulindac are somewhat more effective in inhibiting COX-1. The efficacy of COX-2-selective drugs equals that of the older NSAIDs, while GI safety may be improved.  
   Salicylic acid is a simple organic acid with a pKa of 3.0. Aspirin has a pKa of 3.5. The salicylates are rapidly absorbed from the stomach and upper small intestine yielding a peak plasma salicylate level within 1–2 hours. Aspirin is absorbed as such and is rapidly hydrolyzed (serum halflife 15 minutes) to acetic acid and salicylate by esterases in tissue and blood. Salicylate is nonlinearly bound to albumin. Alkalinization of the urine increases the rate of excretion of free salicylate and its water-soluble conjugates.
4. Gastrointestinal Disorders; *Peptic ulcer* disease is present in 5-15% of patients with dyspepsia. Gastroesophageal reflux disease (GERD) is present in up to 20% of patients with dyspepsia, even without significant heartburn. Gastric or esophageal cancer is identified in less than 1% but is extremely rare in persons under age 50 years with uncomplicated dyspepsia. Other causes include gastroparesis (especially in diabetes mellitus), lactose intolerance or malabsorptive conditions, and parasitic infection (Giardia, Strongyloides, Anisakis).  
   *Pancreatic carcinoma* and chronic pancreatitis may initially be mistaken for *dyspepsia* but usually are associated with more severe pain, anorexia and rapid weight loss, steatorrhea, or jaundice  
   *Dyspepsia* refers to acute, chronic, or recurrent pain or discomfort centered in the upper abdomen. An international committee of clinical investigators has defined dyspepsia as epigastric pain or burning, early satiety, or postprandial fullness. Heartburn (retrosternal burning) should be distinguished from dyspepsia. When heartburn is the dominant complaint, gastroesophageal reflux is nearly always present.