B Pharmacy M pharmacy Study Material Pharmacology Notes DRUGS SUITABLE FOR COLONIC DRUG DELIVERY

DRUGS SUITABLE FOR COLONIC DRUG DELIVERY

Drug delivery selectively to the colon through the oral route is becoming increasingly popular for the treatment of large intestinal diseases and for systemic absorption of protein and peptide drugs. There has been an increasing interest in utilizing the colon as a site for systemic absorption of these drugs in view of the less hostile environment prevailing in the colon. A variety of protein and peptide drugs like calcitonin, interferon, interleukins, erythropoietin and even insulin are being investigated for their absorption using colon specific drug delivery (Mackay and Tomlinson., 1993). Inflammatory bowel disease (IBD) such as ulcerative colitis and Crohn's disease require selective local delivery of drugs to the colon. Sulfasalazine is the most commonly prescribed drug for such diseases. Selective delivery of the drug to the colon is required for therapeutic efficacy with less or no side effects. The other drugs used in IBD are steroids, such as dexamethasone, prednisolone, and hydrocortisone. In colonic cancer, anticancer drugs like 5-flurouracil, doxorubicin, and nimustine are to be delivered specifically to the colon. The site specific delivery of drugs like, metronidazole, mebendazole, albendazole is used in the treatment of infectious diseases, such as amoebiasis and helmenthiasis (Krishnaiah et al., 2002b; Krishnaiah et al., 2001; Jain et al., 2004).

Besides peptide and protein drugs, the colon is also a good site for the absorption of drugs that are not stable in the acidic environment of the stomach, cause gastric irritation (e.g. aspirin, iron supplements) or those degraded by small intestinal enzymes. A number of drugs available as sustained release or delayed release or timed release tablets or capsules for oral administration are anti-inflammatory drugs, anti-hypertensive drugs, etc. Unless these drugs have good absorption characteristics in the colon, their intended use in the management of respective disorders through sustained release or timed release formulations will be in question. The drugs that are having good absorption properties from the colon include theophylline, glibenclamide (Brockmeier et al., 1985), and oxprenolol (Devis et al., 1988). Diclofenac, ibuprofen,

nitrendipine, isosorbide, metoprolol, nifedipine etc. and hence can be investigated for better bioavailability through colon specific drug delivery (Fara, 1989).