Olopatadine selectivity for histamine h1 receptor and

Olopatadinehydrochloride is one of the recently refined second-generation, selectivehistamine H1 – receptor antagonist. It is usually used to inhibit the releaseof lipid mediators, such as leukotriene and thromboxane from humanpolymorphonuclear leukocytes and eosinophils It is a tricyclic compound having a chemicalstructure: 11-(Z)-3-(di-methylamino) propylidene-6, 11–dihydrodibenzb, eoxepin-2-acetic acid monohydrochloride. Olopatadinewas shown to be more stable and potent compared to other commonly usedsecond-generation antihistamines in double-blind clinical trials. Despite beinga second-generation antihistamine, severe CNS side effects have been reportedwith olopatadine. Pharmacological propertiesOlopatadine has shown an affinity for thehistamine H1 receptor in receptor binding in vitro studies. Studies have shown its selectivityfor histamine H1 receptor and a lack of interaction with H2 and H3 – histaminergic, ?-adrenergic, dopaminergic, muscarinic, and numerous otherreceptors have also been demonstrated Olopatadineinhibits the histamine-enhanced expression of intercellular adhesion molecule 1and E-selecting. Olopatadine is more potent as an inhibitor ofhistamine-enhanced tumour necrosis factor-?-stimulated adhesion moleculeexpression. Olopatadine also inhibits anti-human IgE-inducedhistamine release from human conjunctival tryptase/chymase-containing mastcells.

According to these data, it isclear that olopatadine offers additional therapeutic benefits which complementhistamine H1-receptor antagonistic activities. Tolerability and adverse eventsOlopatadine has shown to have little effect onCNS, peripheral nervous system, autonomic nervous system, cardiovascularsystem, digestive and urogenital system in rats, dogs, guinea

pigs, rabbits, mice, and cats at antiallergic doses. An extensive systemic and topical ophthalmictoxicology profile, mutagenicity, single and multiple-dose toxicity, the effecton reproduction, fertility, fetal development, and ocular tolerance forolopatadine have been studied in detail, and it has been declared safe for use. PharmacokineticsOlopatadine was absorbed rapidly, under fastingconditions after a single oral administration to healthy males at doses of 5, 10, 20, 40, and 80 mg. The elimination half-lives were 7.

13–9. 36 h within thisdose range. The drug-drug interaction is very unlikely tooccur, as olopatadine is excreted through renal route without extensivemetabolism.

Under both fasting and non-fasting conditions, the renal clearance remains constant. The effect of food on the absorption ofolopatadine is unremarkable. The plasma concentrations of olopatadine at a doseof 10 mg/body, after single oral administration in elderly subjects were higherthan those after administration to healthy subjects. However, the half-livevalues were almost the same. MetabolismOlopatadine is also a renal clearance drughaving poor metabolism. It has noinhibitory effect on the drug-metabolizing actions that are catalysed by theisoforms of cytochrome P450. Clinical studiesIn one clinical study, 73 patients with chronicurticaria were partitioned for the safety and efficacy of olopatadine at dailydoses of 2, 5, and 10 mg (b.

i. d.) for 2 weeks. None of the groups showedserious adverse effects, and thus, olopatadine was considered highly useful inthe dose range of 2–10 mg/day.

Astudy for the purpose of investigating the safety and efficacy of olopatadineon long-term administration using the 10 mg/day dose for 8 weeks in a total of82 patients was conducted. The only adverse effects observed after 20 days ofadministration were sleepiness and increase in body weight in one patient each. Hence, it was concluded that olopatadine would also be highly useful onlong-term administration with significantly lower incidence of adversereactions. Olopatadine was compared with cetirizine for itssuppressive effects on histamine-induced wheal and flare reaction in adouble-blind, cross-over, placebo-controlled study. Olopatadine was found tohave comparable effects to cetirizine.