3-O-25  Oral Sessions

Brain histamine H₁ receptor occupancy measured by PET after oral administration of desloratadine and loratadine

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Objective: Some histamine H₁ receptor (H₁R) antagonists have sedative effects, caused by the blockade of histamine neural transmission. Desloratadine is a newly-marked antihistamine, but its sedative properties have not been examined by positron emission tomography (PET). We examined the brain H₁R binding potential ratio (BPR), H₁R occupancy (H₁RO) and the subjective sleepiness after oral administration of desloratadine and loratadine, the prodrug of desloratadine.

Methods: Eight healthy male volunteers underwent PET imaging with [¹¹C]doxepin after single oral administration of desloratadine (5 mg), loratadine (10 mg), or placebo in a double-blind crossover study. BPRs and H₁ROs in the cerebral cortices were calculated. Subjective sleepiness was quantified by the LARS and the SSS.

Results: BPR after loratadine administration was significantly lower than placebo (p<0.05), but BPR after desloratadine was not significant. There was no significant difference, however, between H₁RO after desloratadine and loratadine administration. The subjective sleepiness was not significantly different among the two antihistamines and placebo.

Conclusion: At therapeutic dose, desloratadine did not bind significantly to brain H₁Rs and did not cause significant sedation.