A novel ligand of Benzodiazepine receptor, 5-(4-chloro-2-phenoxyphenyl)N-(6-methylpyridin-2-yl)-1,3,4-oxadiazole-2-carboxamide with anticonvulsant effects in PTZ model of seizure

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Abstract: Novel 1,3,4-oxadiazole derivatives are synthetized as ligands of benzodiazepine receptors. Radioligand binding assays studies has shown that 5-(4-chloro-2-phenoxyphenyl) N-(6-methylpyridin-2-yl)-1,3,4-oxadiazole-2-carboxamide is a ligand of benzodiazepine receptors. In this study we evaluated the efficacy of anti-convulsant activity of the novel compound.

In this research experiments were conducted on male NMRI mice using pentylenetetrazole (PTZ) induced convulsion models and the protective effects of the novel compound was evaluated. Flumazenil (a Benzodiazepines receptors selective antagonist) was used for evaluating the role of benzodiazepine receptors in anti-convulsive effects of the novel compound.

The novel compound in doses of 5, 10, and 20 mg/kg prevented the PTZ included convulsion in mice. Flumazenil (10 mg/kg IP) was able to prevent the anti-convulsant effect of the novel compound.

The novel aryl-1,3,4-oxidazole has anti-convulsant activity and at least part of this effect is because of interaction of the compound with Benzodiazepine receptors. Further studies are needed to evaluate the toxicity of the novel compound used in this study.

Keyword: 1,3,4-oxadiazol, sedative-hypnotic, benzodiazepine receptor