Scopolamine has been used in neuropsychopharmacology as a standard drug that leads to symptoms mimicking cognitive deficits seen during the aging process in healthy humans and animals. Scopolamine is known to be a nonselective muscarinic receptor blocker, but its chronic effect on the expression of certain hippocampal receptors is not clear. The aim of the present study was to determine the effect of chronic scopolamine administration on hippocampal receptor expression and spatial working memory in two different learning tasks, the water maze and the eight-arm radial maze. Male rats (8-12 months) were trained in both tasks. Subsequently, different groups received physiological saline or 0.1, 0.8, or 2 mg/kg scopolamine hydrobromide, respectively, for 15 days. After drug administration, the rats were retested for both tasks, and hippocampal expressions of NR2A, NR2B, nAChRα7, and mAChRM1 receptors were assessed by western blotting analysis. In both tasks, the spatial working memory was decreased dose dependently in all groups compared with the control group. In terms of receptor expressions, 0.8 and 2 mg/kg scopolamine administration significantly decreased NR2A protein expression, which corroborates suggestions of an interaction between cholinergic and glutamatergic receptors in the hippocampus.