

Abstract

Vinblastine sulphate is a cancer chemotherapeutic drug which acts by disrupting microtubule dynamics of highly mitotic tissue cells. The affects of this drug on the nasal olfactory mucosa and its olfactory axon projections to the olfactory bulb have not been studied in the rabbit. In this study, we examined the structure of the conchal olfactory mucosa following administration of adult rabbits with a single intravenous dose of vinblastine sulphate. Three to five days post-exposure, there was disarrangement of the normal layering of nuclei of the epithelia, degeneration of bundle axons, appearance of blood vessels within the bundles, and abnormal enlargement of the cells of the Bowman's glands and apoptosis. This scenario was progressively resolved and no changes were observed after day ten except for increased mitosis sporadically seen in the basal parts of the epithelia. Our results suggest that vinblastine-induced changes are transient and that the regenerative recovery occurring by day ten leads to restoration of normal structure of the olfactory mucosa.