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**Title:** Acute and Longterm Effects of Organophosphate Poisoning

**Running Title:** Organophosphate Poisoning

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Pesticides cause acute and chronic intoxications for living creatures in the universe and also cause a number of health problems due to pesticides residues in the soil and products. Among the pesticides, organophosphates are the most common and widely used compounds. Acute or chronic intoxications with organophosphate pesticides are occurring in many regions of the world, especially in developing countries(1,2). Poisonings in all age groups starting from the neonatal period may occur as inhalation, transmission to the skin and sometimes suicidal intravenous injection(3-5). The acute picture is cholinergic poisoning, and chronic headache, polyneuropathy and some endocrine effects are observed.

Although acute poisoning is mostly diagnosed, rarely clinical picture may be present as diabetic ketoacidosis(1). In addition, blood sugar changes are observed without ketoacidosis. In the Central Anatolia region, 48.9% of 269 patients have hyperglycemia and 6.4% have hypoglycemia(2). In the acute period of organophosphate intoxications, a number of endocrine influences can be occurred. It is thought that acetylcholine is a neurotransmitter, in this way hormonal synthesis, transcription factors and receptors are influenced. Guven M et al showed that FSH, LH and prolactin levels increased in acute period. Hypothyroidism, elevated cortisol and ACTH levels have also been reported(5).

Another important issue is the chronic effects of organophosphates. These include polyneuropathy, malignant diseases, neuropsychiatric diseases and teratogenic effects(6). Some organophosphate compounds are reported to cause hypospadias and impaired spermatogenesis as endocrine disruptors(7,8). In a study published in the March 2019 issue of Erciyes Medical Journal, the long-term effects of organophosphates on the endocrine system were discussed. In this article, 29 cases were re-examined approximately 3.5 years later, and one case had cortisol and 3 cases had growth hormone deficiency(9).

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In conclusion, it can be said that organophosphate intoxication is an important healthy problem and causes serious disorders such as endocrine, neuropsychiatric, malignancy and teratogenicity in the acute and chronic period. Therefore, another important issue is that worldwide use of organophosphates should be controlled and limited.

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