

## Decrease of erythrocyte cholinesterase in pesticide factory workers

### Abstract

**Background&Objective:** Two enzymes have the ability to hydrolyze acetylcholine. One is acetylcholinesterase, which is called true cholinesterase, it is found in erythrocytes. The other cholinesterase is pseudocholinesterase, it is found in serum. Some chemical components of organophosphates group and carbamates affected cholinesterase activity. Determination of cholinesterase has application in diagnosis of liver disease, liver damage by insecticide and assessment of fatty liver. Pesticide factory workers are one group of peoples which are exposed of poisoning by pesticide.

**Materials&Methods:** This research in 2005 performed in pesticide producers. In two stages (3 month interval) from 58 of personal blood was drawn.

**Results:** Mean of erythrocyte cholinesterase in first stage was  $48.5 \pm 11.2$  IU/gHb and second stage was  $37.9 \pm 17.3$  IU/gHb. Decrease of erythrocyte cholinesterase was significant differences (paired t test,  $P < 0.05$ ). Increase of serum AST was not statistically significant. Increase of serum ALT and Albumin was significant differences (paired t test,  $p < 0.05$ ). In 15 individual (25.9 %) cholinesterase decrease more than 35% and in 16 workers (27.6 %) erythrocyte cholinesterase decrease between 26-35%.

**Conclusion:** Since in more than 26% of personnel cholinesterase decreased over than 35%, routine assessment of cholinesterase in similar factory, is recommended.

**Key Words:** Cholinesterase – Erythrocyte-Organophosphate- Pesticide

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