

Abstrak

Latar Belakang

Organofosfat dan karbamat adalah salah satu insektisida yang paling umum digunakan di seluruh dunia dan diketahui menekan aktivitas asetilkolinesterase (AChE) yang akan mengakibatkan keracunan sistem saraf. Studi sebelumnya menggambarkan hubungan positif antara aktivitas AChE bersamaan, penanda stabil paparan pestisida penghambat kolinesterase, dengan tremor pada petani. Penelitian ini bertujuan untuk mengidentifikasi hubungan antara kadar kolinesterase dengan tremor pada petani yang terpapar pestisida di Kabupaten Magelang, Indonesia.

Metode

Ini adalah penelitian cross-sectional. Subjek penelitian adalah petani dengan riwayat pajanan pestisida di Ngablak, Kabupaten Magelang, Jawa Tengah, Indonesia. Tingkat kolinesterase dianalisis dari darah. Tremor dinilai menggunakan Tremor Rating Scale (TRS).

Hasil

Secara total, 120 subjek berusia rata-rata $45,8 \pm 13,43$ tahun dimasukkan. Rata-rata kadar kolinesterase darah adalah $8,73 \pm 1,80$ kIU / L, dengan 70 subjek memiliki kadar kolinesterase darah yang rendah dan 86 subjek mengalami tremor. Analisis bivariat menunjukkan bahwa kadar kolinesterase darah dikaitkan dengan tremor ($p = 0,005$; 95% CI = 1,39-7,23). Analisis lebih lanjut menunjukkan bahwa tingkat kolinesterase dikaitkan dengan tremor lengan ($p = 0,02$; 95% CI = 1,58-6,88)

Kesimpulan

Tingkat kolinesterase darah, penanda stabil paparan pestisida penghambat kolinesterase, secara positif dikaitkan dengan tremor pada petani seperti yang dinilai oleh TRS, terutama tremor lengan.

Kata kunci: pesticide exposure, kolinesterase level, tremor

Abstract

Background

Organophosphates and carbamates are among the most commonly used insecticides worldwide and are known to suppress the activity of acetylcholinesterase (AChE) that will result in nervous system toxicity. Previous studies described positive associations between concurrent AChE activity, a stable marker of cholinesterase inhibitor pesticide exposure, with tremor in farmer. This study was aimed to identify association between cholinesterase level with tremor in farmer exposed to pesticide exposure in Magelang Regency, Indonesia.

Methods

This was a cross-sectional study. The subjects were the farmer with history of pesticide exposure in Ngablak, Magelang Regency, Central Java, Indonesia. Cholinesterase level was analyzed from blood. Tremor was assessed using Tremor Rating Scale (TRS).

Results

In total, 120 subjects aged average 45.8 ± 13.43 years old were included. The average of blood cholinesterase level was 8.73 ± 1.80 kIU/L, with 70 subjects had low level of blood cholinesterase and 86 subjects had tremor. Bivariate analysis showed that blood cholinesterase level was associated with tremor ($p = 0.005$; 95% CI=1.39-7.23). Further analysis showed that cholinesterase level was associated with tremor of arm ($p = 0,02$; 95% CI=1.58-6.88)

Conclusions

Blood cholinesterase level, a stable marker of cholinesterase inhibitor pesticide exposure, was positively associated with tremor in farmer as assessed by TRS, especially tremor of arm.

Key words: pesticide exposure, cholinesterase level, tremor