

KORELASI KADAR KHOLINESTERASE DARAH DENGAN GAMBARAN NERVE CONDUCTION STUDY PADA PETANI TERPAJAN PESTISIDA DI KECAMATAN NGABLAK KABUPATEN MAGELANG JAWA TENGAH

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ABSTRAK

Keracunan pestisida sering terjadi di daerah pertanian akibat perilaku penggunaan yang salah. Salah satu akibat keracunan pestisida adalah neuropati perifer toksik. Efek pajanan pestisida terhadap munculnya neuropati perifer pada petani terpajan perlu diteliti lebih lanjut. Kecamatan Ngablak, Magelang merupakan daerah dengan tingkat keracunan pestisida yang tinggi. Penelitian ini bertujuan untuk mengetahui korelasi antara kadar kholinesterase darah dengan gambaran latensi distal, kecepatan hantar saraf, dan amplitudo saraf tepi pada petani terpajan pestisida organofosfat di kecamatan Ngablak, Magelang.

Penelitian ini merupakan studi potong lintang. Subyek terdiri dari petani dengan kontak pestisida harian di Kecamatan Ngablak. Pajanan pestisida dinilai dari kadar kholinesterase darah (AChE). Keparahan neuropati dinilai berdasar analisis gelombang *Sensory Nerve Action Potential* (SNAP) dan *Compound Motor Action Potential* (CMAP) meliputi latensi distal, kecepatan hantar saraf tepi dan amplitudo pada pemeriksaan ENMG.

Subjek penelitian berjumlah 64 orang (52 (81%) laki-laki dan 12 (19%) perempuan). Keracunan pestisida ditemukan pada 70.3% subyek. Terdapat korelasi positif lama pajanan pestisida dengan latensi distal CMAP nervus medianus dan ulnaris serta korelasi negatif dengan kecepatan hantar motorik dan amplitudo SNAP nervus medianus. Tidak terdapat korelasi signifikan antara kadar AChE dengan latensi distal, kecepatan hantar saraf tepi dan amplitudo saraf tepi. Terdapat kecenderungan pemanjangan latensi distal motorik nervus medianus dan tibialis, sensorik nervus ulnaris dan suralis, penurunan kecepatan hantar saraf tepi motorik nervus tibialis, penurunan amplitudo motorik nervus medianus, ulnaris, tibialis pada kelompok keracunan pestisida dibandingkan kelompok normal. Kesimpulan penelitian ini yaitu tidak terdapat korelasi signifikan antara kadar kholinesterase dengan gambaran *nerve conduction study* petani terpajan pestisida di Kecamatan Ngablak Kabupaten Magelang Jawa Tengah.

Kata kunci: Kholinesterase darah, nerve conduction study, pestisida, petani

**CORRELATION OF BLOOD CHOLINESTERASE LEVEL AND
CHARACTERISTIC OF NERVE CONDUCTION STUDY OF FARMERS
EXPOSED TO PESTICIDES IN NGABLAH DISTRICT, MAGELANG
REGENCY, CENTRAL JAVA, INDONESIA**

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ABSTRACT

Pesticide poisoning often occurs in agricultural areas due to false application behavior. Pesticide poisoning may cause toxic peripheral neuropathy. The effects of pesticide exposure on the development of peripheral neuropathy in exposed farmers needs to be further investigated. Ngablak District, Magelang is an area with high levels of pesticide poisoning. This study aimed to determine the correlation between the levels of blood cholinesterase and the distal latency, nerve conduction velocity, and the amplitude of the peripheral nerves in farmers exposed to organophosphate pesticides in Ngablak District, Magelang, Central Java.

This was a cross-sectional study. The subjects were farmers with daily contact to pesticide in Ngablak District. Pesticide exposure was assessed by blood cholinesterase (AChE) level. Sensory Nerve Action Potential (SNAP) and Compound Motor Action Potential (CMAP) wave including distal latency, nerve conduction velocity and amplitude was recorded using electroneuromyography. Data was analyzed using Spearman/ Pearson test.

There were 64 subjects participated in this study (52 males (81%) and 12 females (19%). Pesticide poisoning ($AChE < 9.57$ IU/L) was found in 70.3% subjects. There was a positive correlation between the pesticide exposure duration and motoric distal latency of the median and ulnar nerves. Negative correlation were seen between duration of exposure and motoric conduction velocity of median, ulnar and the SNAP amplitude of the median nerve. There was no significant correlation of AChE level and distal latency, nerve conduction velocity and peripheral nerve amplitude. There is a tendency of distal latency prolongation on the CMAP of median and tibial nerve, SNAP of ulnar and suralis nerve, decreased motoric nerve conductivity velocity of the tibial nerve, CMAP amplitude reduction of the median, ulnar, tibial nerve on pesticide poisoning group than normal group. This study concluded that there was no significant correlation between the level of blood cholinesterase and the nerve conduction study characteristic of farmers exposed to pesticides in Ngablak District, Magelang, Central Java

Keyword: Blood cholinesterase, nerve conduction study, pesticide, farmer