Statins and risk of polyneuropathy: a case-control study.

Neurology 2002 May 14;58(9):1333-7

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FROM ABSTRACT

BACKGROUND:
Several case reports and a single epidemiologic study indicate that use of statins occasionally may have a deleterious effect on the peripheral nervous system.

The authors therefore performed a population-based study to estimate the relative risk of idiopathic polyneuropathy in users of statins.

METHOD:
The authors used a population-based patient registry to identify first-time-ever cases of idiopathic polyneuropathy registered in the 5-year period 1994 to 1998.

For each case, validated according to predefined criteria, 25 control subjects were randomly selected among subjects from the background population matched for age, sex, and calendar time.

The authors used a prescription register to assess exposure to drugs and estimated the odds ratio of use of statins (ever and current use) in cases of idiopathic polyneuropathy compared with control subjects.

RESULTS:
The authors verified a diagnosis of idiopathic polyneuropathy in 166 cases. The cases were classified as definite (35), probable (54), or possible (77).

The odds ratio linking idiopathic polyneuropathy with statin use was 3.7 (1.8 to 7.6) for all cases and 14.2 (5.3 to 38.0) for definite cases.

The corresponding odds ratios in current users were 4.6 (2.1 to 10.0) for all cases and 16.1 (5.7 to 45.4) for definite cases.

For patients treated with statins for 2 or more years the odds ratio of definite idiopathic polyneuropathy was 26.4 (7.8 to 45.4).

CONCLUSIONS:
Long-term exposure to statins may substantially increase the risk of polyneuropathy.

THESE AUTHORS ALSO NOTE:

Statins drugs are lipid-lowering drugs.

"An ever-growing number of patients are receiving long-term treatment with statins."

The relative safety of long-term use of statins drugs in unselected populations of patients may reveal unrecognized problems.

One of these complications is polyneuropathy.

This study is the only published epidemiologic study to date on this topic.

The clinical criteria for a diagnosis of polyneuropathy were distal symmetric sensory symptoms or symmetric motor symptoms and no upper motor neuron signs, or both.

The neurophysiologic criteria were abnormal conduction velocity in two or more peripheral nerves.

The median duration of statin use in the cases was 2.8 years (range 1.9 to 3.0).

DISCUSSION

"Users of statins were at a 4 to 14-fold increased risk of developing idiopathic polyneuropathy compared with the background population, and that this adverse effect may primarily occur after long-term treatment with statins."

The results of this study are in line with several other studies that indicate an association between statin use and polyneuropathy.

This study and previous studies "strongly suggest a toxic effect of statins on peripheral nerves."

Interference with cholesterol synthesis by statin drugs "may alter nerve membrane function because cholesterol is a ubiquitous component of human cell membranes."

"Statins also inhibit the synthesis of the key mitochondrial respiratory chain enzyme, ubiquinone, which may disturb neuron energy utilization and thereby induce neuropathy."

Long-term exposure to statins cause structural and functional changes of the neurons.

"Polyneuropathy as a side effect to statin use is not mentioned in the Danish physicians drug reference book, and this potential side effect received little attention in the international medical literature during the study period."

Because of the protective effect statin drugs have on coronary artery disease, the authors believe that their benefits outweighs the risks.

However, they note if peripheral neuropathy complaints arise in statin drug users, that the physician should reconsider continuous treatment with these drugs.

THIS ARTICLE GENERATED THE FOLLOWING EDITORIAL

Assessing the risk of drug-induced neurologic disorders: Statins and Neuropathy

Neurology. 2002 May 14;58(9):1321-2.

Michael Donaghy

"Clinicians are familiar with the myopathy induced by the statin class of cholesterol-lowering drugs that are now in common use."

This case-control study shows that statins can also cause polyneuropathy.

"Medications are responsible for a huge range of neurologic disorders, but for most such drugs we have little useful concept of risk."

If one suspects a drug side effect, stopping the drug may not reverse the damage to the structure or physiology of the nervous system.

Statins are connected to "polyneuropathy with a relative risk of 16.1 (5.7 to 45.4) for definite cases. The risk was increased by the duration of statin use and cumulative dose. It seems a fairly conclusive association."

"In the case of statin-induced myopathy, the daily dosage predicts the risk of muscle damage."

"The polyneuropathy in question has electrophysiologic features predominantly of axonal degeneration, and usually presents with pain, paraesthesias, and numbness; muscle stretch reflexes were absent in half."
[This could easily be many chiropractic patients.]

KEY POINTS FROM DAN MURPHY

(1) Statin drugs are lipid-lowering drugs.

(2) Nerve cell membrane function depends upon cholesterol.

(3) "Long-term [2 – 3 years] exposure to statins may substantially increase the risk of polyneuropathy."

(4) Many patients are receiving long-term treatment with statin drugs.

(5) Statin drugs raise a person's risk of polyneuropathy nerve damage by about 16%, and some groups may have an increased risk of 45%.

(6) Statin drugs are also known to cause myopathy.

(7) The toxic structural and functional changes of the neurons from use of statin drugs on peripheral nerves may be permanent.

(8) Statin drugs also inhibit mitochondrial respiratory energy production.

COMENTS FROM DAN MURPHY

The nerve damage of polyneuropathy is characterized by extremity weakness, tingling, difficulty walking, and weakness.

Statin drugs raise a person's risk of polyneuropathy nerve damage by about 1600%, and some groups may have an increased risk of 4500%.

Currently, about 16 million Americans are taking statin drugs, and about 36 million Americans have blood lipid levels high enough to warrant them taking these drugs.

These numbers will skyrocket as baby boomers age. Sales of statin drugs are projected to rise by 20% per year.

Statin drugs are already the most profitable drug ever. Lipitor, the best selling of the statin drugs, had $7 billion in sales last year, and is projected to have $10 billion in sales this year.

Every chiropractor has patients taking statin drugs. These drugs may be responsible for the signs and symptoms that we are treating the patient for.