CLN8: AN ATORVASTATIN-SPECIFIC MARKER FOR COMMON MYALGIA

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Background: Statin therapy is highly successful for the treatment of hypercholesterolemia and prevention of cardiovascular disease. Side effects that include muscle pain (myalgia), weakness and/or increased serum CK activity (myositis) often disrupt treatment, with no unifying hypothesis to explain them. We used genome-wide association to investigate whether genetic links to myalgia may be statin-specific.

Methods: We genotyped 793 statin-treated patients with an array of 865,483 SNPs. There were 320 patients on atorvastatin, 116 on simvastatin; 150 on rosuvastatin, 207 on other statins. Myalgia index was scored as 1 for myalgia presence in 377 patients and 0 for no myalgia in 416.

Results: The SNP rs7014327 of the ceroid lipofuscinosis, neuronal 8 (CLN8) gene was associated with myalgia at a significance of p < 2*10^-7 (R^2 = 5.2%) in patients receiving atorvastatin only. In all patients the SNP was unassociated (p < 10^-5, R^2 = 2.6%). CLN8 encodes a protein implicated in Pompe's disease, whose hallmark is myopathy.

Conclusion: We propose a new candidate for myalgia, CLN8, which has an effect only in atorvastatin patients. This drug dependent association supports the hypothesis of statin-specific pathways for statin myopathy.