Effects of Atorvastatin and Rosuvastatin on Blood Lipids in Quaker Parrots (*Myiopsitta monachus*)

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Abstract: Statin drugs are the most effective class of hypolipidemic and antiatherosclerotic drugs, with atorvastatin and rosuvastatin being the most effective. While the use of statins would be a tremendous asset in the treatment of dyslipidemia and lipid-accumulation disorders in birds, there are only limited data available regarding their use and effectiveness in psittacine species. Two consecutive randomized crossover trials on Quaker parrots (*Myiopsitta monachus*) were performed to study the effect of atorvastatin and rosuvastatin. Ten birds were used in an initial balanced crossover experiment with 5 oral treatments (control; atorvastatin 10 mg/kg q12h and q24h; rosuvastatin 10 mg/kg q12h and q24h) for 2 weeks each. Plasma lipidomics and lipoprotein profiling were performed after each treatment.

Twelve birds were used in a second experiment consisting of 2 parallel crossover studies, each with 6 birds either fed their regular diet or a 0.3% cholesterol diet. In the 2 parallel crossover studies, the treatment group was administered atorvastatin 20 mg/kg orally q12h and the control group a placebo suspension orally q12h. Plasma lipidomics, lipoprotein profiles, and 3-hydroxy-3-methylglutaryl-coenzyme A (HMG-CoA) reductase activity were subsequently measured. Results were analyzed with serial linear mixed models and trends were assessed graphically. No statistically significant effect of any statin treatment was detected on plasma lipids, lipoproteins, creatinine kinase, or HMG-CoA reductase activity. In the first trial, all the rosuvastatin treatments led to some nonsignificant decreases in several triacylglycerol species, while in the second trial this was only observed in the birds on atorvastatin 20 mg/kg q12h being fed their regular diet. Quaker parrots may require much higher doses of statin drugs to show significant and clinically useful lipid-lowering effects.