The protease inhibitors ritonavir and saquinavir influence lipid metabolism: a pig model for the rapid evaluation of new drugs - DTU Orbit (31/12/2018)

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Background: Studies of the effects of antiretroviral drugs on lipid metabolism are limited by the availability of suitable models. We have thus developed an animal model utilising Gottingen mini-pigs. The normal lipid metabolism of mini-pigs closely reflects that of humans and they are expected to have similar reactions to antiretroviral drugs. Methods: The pigs were treated orally with high doses of the protease inhibitors ritonavir and saquinavir for 4 weeks. The model allows repeated concomitant biopsies from liver, muscle, adipose tissue and plasma samples. Results: The study showed a general decrease in polyunsaturated fatty acids; changes in both saturated and monounsaturated fatty acids were also apparent after antiretroviral treatment. The changes were observed after 4 weeks of treatment. At 4 weeks post-treatment, the levels of all fatty acids were lower compared with pretreatment levels, suggesting a prolonged effect of the antiretroviral drug treatment lasting beyond the 4 week post-treatment observation period. Conclusions: The Gottingen mini-pig model is a promising animal model for rapid screening of the metabolic effects induced by antiretroviral drugs.

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