1. No.
   2019Y014

2. Title
   The effect of smoking and high fat diet on ischemic stroke

3. Period
   2019-2021

4. Summary
   We examined the effects of nicotine plus high fat diet on acute ischemic stroke focused on endothelial functions. Only nicotine or palmitic acid was not related with reduced endothelial functions. Nicotine plus palmitic acid *(in vitro* high fat model) were related with disruption of endothelial function *in vitro*. Under normal conditions, nicotine plus palmitic acid aggravated autophagy compared with no treatment group. But under ischemic conditions, autophagy was enhanced in no treatment group and this autophagy was inhibited in nicotine plus palmitic acid. Nicotine plus high fat diet were led to aggravating acute ischemic stroke *in vivo*. Experimental acute ischemic stroke showed enhanced autophagy in no treatment group and nicotine plus high fat diet were also inhibited autophagy *in vivo*. Nicotine receptors are α7 receptor and α4β2 receptor. We also investigated which nicotinic receptors were contributed to this autophagy pathway using each agonist. In the results showed that α7 nicotinic receptor was related with endothelial disfunction, but more study must be necessary.