1. **No.**

   FP01906104

2. **Title**

   Effects of Smoking on the Regulation of Sarcopenia-related Myokines Secretion.

3. **Period**

   2018-2020

4. **Summary**

Obesity induces systemic low-grade chronic inflammation. Obesity sarcopenia is deeply related with obesity-induced insulin resistance, expression of inflammatory cytokines and oxidative stress although the mechanism is uncertain. In addition, it is reported that “myokine” secreted from muscle, such as IL-15 and brain-derived neurotrophic factor (BDNF) promotes the enlargement of muscle fibers. Recently, obesity sarcopenia is also associated with lipopolysaccharide (LPS) released from intestine, which induces inflammatory responses in muscle. It is well-known that nicotine has action of anti-inflammation in bowel intestine. Nicotine treatment decreased plasma LPS concentration which elevates during HF feeding. This treatment also improved the reduction of myokines such as IL-15 and BDNF induced by HF diet. Furthermore, HF-induced inflammation, atrophy of muscle fibers, and function of intestinal barrier were ameliorated by low-dose nicotine treatment, but not by high-dose nicotine. Thus, we suggest that nicotine intake might be effective to prevent the development of obesity sarcopenia but nicotine might have an “on-off” effect to improvement of obesity sarcopenia..