congenital abnormality. Only a few cases have been reported in dog and human. This report is to describe a case of canine gallbladder hypoplasia that was confirmed by imaging and exploratory laparotomy.

Materials and Methods: An 1-year-old, spayed female Miniature Pinscher dog was referred to Seoul National University Veterinary Medicine Teaching Hospital for elevated liver enzymes. The dog had symptoms of intermittent vomiting and mild anorexia. The liver enzyme elevation had been first detected a few months ago before the dog was neutered.

Results: Serum biochemistry tests showed marked elevation of liver enzymes (ALT, AST, ALP, GGT). Both preprandial and postprandial bile acid concentrations were also higher than upper limit of reference range. Despite contined medication with liver supplements, serial serum biochemistry results showed consistently elevated liver enzymes. Abdominal sonography revealed absence of the normal gallbladder. Instead, a small rounded-anechoic structure was found. To confirm the findings, exploratory laparotomy was performed. The exploratory laparotomy confirmed the diagnosis of gallbladder hypoplasia. There was no lesion in hepatic lobes, overall texture of the liver was within normal range. The histopathological examination of a liver biopsy identified vacuolar degeneration of hepatocytes with immature bridging fibrosis and bile duct hyperplasia.

Conclusions: The clinical signs and biochemistry results of this animal were very similar to those of dogs with common hepatobiliary diseases. Though it is extremely rare, gallbladder abnormality could be considered in differential diagnosis for persistent liver enzyme elevation and should be diagnosed by imaging and exploratory laparotomy.

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Cross-sectional study: Prevalence of Subclinical ketosis in Korean dairy farm

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Introduction: Subclinical ketosis (SCK) is a common metabolic disease with excess of blood ketone bodies during transition periodof in dairy cattle. Ketosis affects farm production losses by treatment costs, decreasing milk production and low reproductive performance. In North America,approximately 40% of lactation cow were experienced the SCK and the incidence were varies from herd to herd. In the study, the prevalence of SCK was evaluated based on days in milk (DIM) and herd level

Materials and Methods: Thirteen herds were enrolled for this study at Chungnam province. Whole blood samples were collected according to lactation periods such as early lactation period (0-49 DIM), high yield lactation period (50-109DIM), mid lactation period (110-219 DIM), late lactation period (220 ~DIM) and dry period on each herd. Four to five bloods were sampled on each lactation period and were analyzed the β-hydroxybutyrate (BHBA) by usingPortable Ketone Test Kit (Precision Xtra® Abbott). The blood BHBA between 1.2 and 2.9 mmol/L was diagnosed as SCK.

Results: The SCK was observed at 12 herds except 1herd and prevalence was ranged from 6.3% to 57.1 depend on herd level. Four herds were more than 40% of SCK prevalence. The distribution of SCK at early lactation period, high yield lactation period, mid lactation period, late lactation period and dry period were 9.5%, 27.5%, 36.8%, 27.9% and 12.5% respectively.Clinical ketosis was observed only at early lactation (9.5%) and mid lactation(2%) period.

Conclusions: Subclinical ketosis (SCK) was detected most herd in the study and the prevalence of SCK was varied according to the each herd. Interestingly SCK prevalence was high at high yield lactation, mid lactation and late lactation period in the study although clinical ketosis was high at early lactation period (9.5%). This would be presuming due to the difference of feeding management on each farm and breeding of high milk production cows in Korea. The results were come from cross sectional study. Further studies are needed on longitudinal changes in BHBA and feeding management of each herd.

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Anti-atherosclerotic effects of *Crataegus pinnatifida* water extract in an antioxidant assay model and an In Vitro model of Human Coronary Artery Endothelial Cells (HCAECs)

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Introduction: Atherosclerosis is a chronic, inflammatory disease of the vasculature characterised by the formation and accumulation of lipid laden foam cells. The initial

trigger of formation of atherosclerosis is accumulation and trapping of oxidized LDL(ox-LDL) lipoproteins in the intima of medium and large arteries. Modification of the trapped LDL, particularly ox-LDL, instigates an inflammatory response in the nearby endothelial cells (Ecs) via pro-inflammatory cytokines which direct circulating monocytes and T lymphocytes to the site of ox-LDL accumulation and finallyresults in the accumulation of foam cells that eventually develop into an unstable atherosclerotic plaque that leads tothrombosis.

Materials and Methods: We investigated anti- atherosclerosis effects of several natural products water extract of which were listed as effective natural product curing"heart pain" in Donguibogam and Banyakhappyun. These resources listed candidatenatural products including: *Crataeguspinnatifida*, *Pueraria lobata Ohwi*,*Angelica gigas* and *Radix Salviae Miltiorrhizae*. In our study, human coronary artery endothelial cells (HCAECs) were co-incubated with ox-LDL (100 μg /mL) and with/without water extracts or ethanol extracts of candidate natural products (20, 400, 1000 μg/mL) and atorvastatin(10 μM) andthen DPPH and ABTS radical scavenging capacity assay and anti-inflammation effect of upper listednatural products were evaluated. Gene expression of inflammatory chemokines (IL-6 and IL-1β), as well as cell adhesion molecules (VCAM-1, ICAM-1) and monocyte chemoattractant protein 1 (MCP-1) were also assessed.

Results: Water extracts of *Crataegus pinnatifida*, *Pueraria lobata Ohwi*, *Angelica gigas* and *Radix Salviae Miltiorrhiza* were investigated for their antioxidant properties using DPPH and ABTS radical scavenging capacity assay. Amongthe tested extracts of natural products, *Crataegus pinnatifida* possessed the highest antioxidant capacities. Water extracts of *Crataeguspinnatifida* significantly decreased the gene expression of IL-6, IL-1β in a dose dependent manner on LPS-induced in humanacute monocytic leukemia cell, also decreased the gene expression of cell adhesion molecules and monocyte chemoattractant protein-1 on ox-LDL-induced in HCAECs arteriosclerosis disease cell model.

Conclusions: Conclusively, we found promising natural products having anti-atherosclerosis effects by using DPPH and ABTS radical scavenging capacity assay and an in vitromodel of HCAECs inflammation, which may help having direction of further studies and applications of natural products helping for the prevention or curve of cardiovascular diseases.

Acknowledgement: This study was supported by "the High Value-added Food Technology Development Program (Project title: Establishment of Scientific Infrastructural Knowledge of Traditional AgriculturalFood-Originated-Medicines, Project No. 314071-03)" of Korea Institute of Planning & Evolution for Technology in Food, Agriculture, Forestry)

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Effect of ivermectin on prevention of *Theileria* Infection and hemolytic anemiain grazing cattle

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Introduction: Ectoparasites,and diseases transmitted by them, were considered to be very important for theoutbreaks of diseases, such as theileriosis and anaplasmosis, leading to significanteconomic damages in grazing cattle. Especially, Ixodidae (hard ticks) and theirrelated diseases have been known to cause hemolysis and subsequent anemia in grazingcattle. To protect against these diseases, various methods have been developed,including preventative drugs.

Materials and Methods: In the present study, the effect of ivermectin on hematocrit (Hct) and the prevalenceof *Theileria orientalis* were surveyed in grazing cattle. Before grazing, 68cattle in Jiri Mountain were selected to collect blood and measure of Hct leveland the infection rates of *T. orientalis* were investigated. Theinfection of *T. orientalis* was performed by PCR based on MPSP gene. These cattle weredivided into 2 groups: 51 cattle were treated with