High-Fat Western Diet Consumption Exacerbates Silica-Induced Pulmonary Inflammation and Fibrosis_Dataset

Introduction

Adipose tissue (AT), an endocrine organ, plays a central role in maintenance of whole-body energy homeostasis through its release of adipokines. Obesity, affecting over 40% of American adults, disrupts adipocyte metabolism leading to chronic systemic inflammation and metabolic dysfunction (MetDys). MetDys is associated with impaired lung function, pulmonary hypertension, and asthma. The aim of this study was to investigate the effects of high-fat Western diet (HFWD)-consumption on silica-induced pulmonary inflammation and fibrosis in the F344 rat.

General Materials and Methods

- This laboratory-based investigation studied the effects of HFWD-consumption on silica-induced pulmonary inflammation and fibrosis in the F344 rat.
- Six wk old male rats were fed a HFWD or standard (STD; control) for 16 wk prior to inhalation exposure to respirable crystalline silica dust (6 h /d, 5 d / wk, 39 d) with end point measurements taken at 0, 4 and 8 wk post-exposure to silica.
- Animals were maintained on their assigned diet for the duration of the study.
- Endpoint measurements include bronchoalveolar lavage and removal of tissues from euthanized animals. Endpoint measurements include:
    - BAL cell counts: total cells, lymphocytes, neutrophils, macrophages
    - Bal cytokines measures: IFNγ, IL-1β, IL-4, IL-5, IL-6, KC/GRO, TNFα
    - Histology of left lung, and slides stained as follows:
        - H&E stain for semiquantitative histological analysis
        - Trichrome stain for collagen deposition

Publication based on the data set

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