

Document Type : Thesis
Document Title : *Effect of Gasoline Contact on Histological and Histochemical Structures of Guinea Pig Skin*

تأثير تلامس الغازولين على التركيب النسيجي والكيمونسيجي في جلد الخنزير الغيني

Document Language : Arabic

Abstract : Gasoline has many synonyms which include gas, petrol, and motor fuel. Gasoline is a volatile and flammable liquid. It is colorless to pale brown or pink in color with a distinctive odor. We are concerned here with using gasoline as motor fuel. Automotive gasoline is a complex mixture of relatively volatile hydrocarbons with additives such as MTBE or without any other additives. Some ingredients in gasoline can pass through the skin when used as a cleaner or accidentally spilled on skin or clothing. skin is of several exposure routes where by gasoline , a widely distributed environmental contaminant, so accurate prediction of its percutaneous absorption are important for risk assessment .Most gasoline-based fuels cause skin irritation and Skin toxicity by prolonged or repeated exposure. People can also be exposed when handling contaminated soil or water. Inhalation is a common route of exposure to gasoline. Generally, gasolines odor provides adequate warning of hazardous concentrations. There is no evidence that exposure to gasoline causes cancer in humans. However, long-term exposure to high levels of benzene, a component of gasoline, may increase a persons risk of leukemia. The aim of this study was to examine the effects of short-term skin exposure (direct method) and long-term skin exposure (indirect method) to gasoline on skin irritant responses and to notice any other inflammatory changes or allergies as a result of such exposure. Bigs an accepted animal model for human skin, we used in this study 85 male Hartley pigs ranging in weight from 400-to 600g. The area of exposure were located on the hairless back of the pigs. Gasoline was applied for 7-14-21 days successively to a (3× 4cm) skin-exposure area. Skin absorption of gasoline was examined by direct exposure in lab and indirect exposure at a fuel station. By using the direct exposure, pigs were exposed to gasoline topically twice a day. By using indirect exposure, the animals were exposed to inhalation of gasoline vapors. Pathological changes in the skin following gasoline direct exposure were evaluated histologically. Increased numbers of granulocytes were observed infiltrating the skin after 7-14-21 days. Exposure to gasoline results in a local inflammatory response, which can be detected by changes in and histological parameters. showed erythema, ulceration, and other skin allergies were seen after repeated exposure to gasoline. Other aspects of dermatitis were also seen such as epidermal thickness, hyperkeratosis, microabscesses filled with neutrophils, reparded necrosis and spongosis. Direct exposure to gasoline either by application or contact showed results concerning histological lesions two times more obvious that they were in indirect exposure by inhalation. Microscopically studies on sections of the skin taken from fuel station after indirect exposure to volatile drizzle and vapors of gasoline during 30-60-90 days of continuous exposure for 24 hrs. showed that epidermis were still normal without any change while infiltration of inflammatory cells was seen in the upper section of the epidermis. Ultrastructural studies depicted cleft formation within intercellular lipid lamellar bilayers of the keratin layer as well as similar changes in the spinal and basal layers. Theses changes were represented in the presence of intracellular edema and the presence of Nucleolar magrination and Mitochondria were also seen swollen , This swelling and inflation in mitochondria lead to detached cristae and a sequent decrease in the general density. A further study on the effects of treatment with some chemicals such as anti inflammatory and anti-burning creams including zinc oxide cream, dermovate cream and some other natural substance such as naturally-occurring flavonoids extracted from citrus peel in lightening the severity of these changes. The recent study concluded that by isolation animals which exposed to gasoline will give them recovery period or a revert effect, that my help in the recovery of their epidermal layer which and became normal. There is an urgent need for more investigations and studies in this field as the health effects of being exposed to gasoline over long

periods of time are not well known.

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Publishing Year

: 2007