Medicolegal studies on severely burned bodies.

1987 Fiscal Year Final Research Report Summary

Medicolegal studies on severely burned bodies.

Research Project

Project/Area Number

60440041

Research Category

Grant-in-Aid for General Scientific Research (A)

Allocation Type

Single-year Grants

Research Field

Legal medicine

Research Institution

Kanazawa University

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1985 – 1987

Keywords

Blood group antigen / Immunoelectronmicroscopy / Ultrastructure / Thermo-change / Forensic toxicology / volatile poison / CNS-active drug / GC-MS

Research Abstract

This research has been carried out in order to offer solutions of the following medicolegal problems concerning severely charred bodies; personal identification and diagnosis of cause of death.
1. Thermo-changes of human tissue cells and their blood group activities:
All the activities examined in the systems such as the ABO, Lewis, MNSs and Rh remained on the denaturated red cells after heating at 100° c. The ABO and Lewis group activities were detectable after heating at 180-200° c. Electron-microscopically, the thermodenaturated cells (60-100° c) showed swelling and

fragmentation of the membranes. By immunoferritin staining, the ABO group activities were demonstrated on the membranerelated substances which showed a coagulative change.
Ultrastructural localization of the ABO group activities in some kinds of cells such as mucous cells and endothelial cells of the vessels were shown by immunogold method. Nearly charred layuers of tissues were micro- and ultramicroscopically almost amorphous . Inner parts, retaining the microscopic structures fairly well, ultramicroscopically showed swelling and fragmentation of the cell membranes and a coagulative change of the matrix, and the ABO group activities were detectable in the cells above. Monoclonal antibodies could be produced against blood group antigen-related substances; anti-human red cell membrane and anti-human salivary blood group substance.
2. Forensic toxicological studies on severely charred bodies:
On volatile and gaseous poisons, fundamental experiments showed that ethanol and toluene remained in charred egg white masses, their contents being correlated with the thermochanges of the portions examined. In the experiments using animal carcasses, it was shown that ethanol, toluene, propane, ether and chloroform were detectable from charred organs. for the analysis of volatile poisons from traces of specimens, a new method was developed employing a curie-point pyrolyser.
Chlorpromazin, diazepam and methamphetamine proved to be determinable by GC-MS from nearly charred tissue specimens.▲ Less

Research Products (44 results)

All Other

All Publications (44 results)

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