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THE RELATIONSHIP BETWEEN BLOOD CHEMISTRY FINDINGS
AND HEPATIC DISORDERS IN DAIRY COWS

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The purpose of this study was to investigate the value of chemical analysis of blood to evaluate hepatic disorders in dairy cows. Experimental hepatic lesions (a ram) and clinical cases (dairy cows) were observed for pathological findings and serum contents (enzymes, lipids, proteins, etc.). The results were as follows:

1) A ram treated with DL-ethionine developed an accumulation of fat in the hepatocytes. Chemical analysis of blood made after administration disclosed gradual increases of T-GOT, GLDH, T-bil. and NEFA. On the other hand, the blood levels of T-Cho., HDL-Cho. and β -Lipo. decreased little by little. It appeared that the levels of serum enzymes and lipids were related to the fatty change of liver.

2) The hepatic macroscopic findings and microscopic findings in dairy cows were various. The macroscopic findings were cloudy swelling, hemangioma cavernosum, fascioliasis, abscessation, hepatic capsulitis, thickening gall duct, gallstones and congestion. The microscopic findings were hydropic degeneration, necrosis, fibrosis, fatty change, parasitic lesions in the liver (eosinophil infiltration, giant cell and the remains of parasites) and others. However, the degree of changes was mild.

3) It was difficult to correlate the findings of chemical analysis of blood with microscopic findings, except in a few cases. But one cow with congested liver had a high level of γ -GTP and GLDH. Moreover, all cows with parasitic lesions in the liver showed high levels of γ -GTP; however, the high levels of GLDH were observed only in the cows with eosinophil infiltrations. The γ -GTP and GLDH tests were considered to be valuable to evaluate the conditions of congested liver and parasitic hepatitis.

4) Among the clinical cases, there were many cows with hepatic lesions whose blood chemistry findings were within a standard range. These results suggested the danger that the presence of hepatic lesions might be missed if only the standard values are used.