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STUDIES ON BLOOD BIOCHEMICAL FINDINGS  
AND HEPATIC DISORDERS IN DAIRY COWS

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The purpose of this study was to estimate the usefulness of blood biochemical analysis as a diagnostic indicator of hepatic disorders in dairy cows. Experimental hepatic lesions, periparturient and clinical cases were observed for histopathological findings and serum contents. The results obtained were as follows:

1. Two calves treated with DL-ethionine developed an accumulation of fat in the hepatocytes. Blood biochemical analysis revealed that serum m-GOT and GLDH activities increased gradually after administration. Blood levels of T-Cho, HDL-Cho, TG and  $\beta$ -lipo decreased by degrees and those of NEFA and T-Bil increased remarkably.
2. In a calf treated with carbon tetrachloride, hepatic periacinar necrosis, active congestion and hemorrhage were recognized. Total activities of several serum enzymes increased markedly during a 24–48 hour period after administration.
3. In the observations of six periparturient heifers, three heifers revealed mild fatty change of the liver just before and/or after calving. From blood biochemical analysis of all cows, a slight increase of serum T-GOT,  $\gamma$ -GTP and GLDH activities was recognized just before or after calving. In three cases with hepatic fatty change, not only the above-mentioned findings but also increases of serum NEFA and T-Bil levels after calving were noticed.
4. Among the clinical cases, the following histopathological changes were noted: hydropic degeneration, fatty change, hepatocellular necrosis, passive congestion, amyloidosis, interstitial fibrosis, parasitic lesion and others.
5. Serum biochemical findings were correlated to some extent with each microscopic finding in the liver; cows with lesion in the hepatic parenchyma (hydropic degeneration, fatty change and hepatocellular necrosis) had high levels of m/T-GOT, GLDH and  $\gamma$ -GTP, and cows with lesion in the interstitium (passive congestion, amyloidosis and parasitic lesion) had a high level of  $\gamma$ -GTP.
6. The results of the present study suggested that the condition of the liver could be judged accurately only by blood biochemical analysis; however, it was possible to estimate the degree of hepatic disorder to some extent on the basis of blood biochemical findings. In addition, in experimental and periparturient cases, it may be necessary to monitor the changes in the values of blood biochemical analysis with time intervals for each individual.