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Biochemical analysis of cerebrospinal fluid in healthy and neurological affected dromedary camels (*Camelus dromedarius*)

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Biochemical analysis of Cerebro Spinal Fluid (CSF) is a valuable aid in the diagnosis of neurological disorders. The purpose of the present study was to compare some biochemical parameters in CSF of healthy and neurological affected camels. Also the valuability of flow cytometry as a tool for the analysis of the cellular component of camel CSF was evaluated. Five apparently healthy camels (control animals) and nine affected camels with a history of neurological signs (diseased animals) were included in this study. Most diseased camels had acute neurological symptoms including staggering, shaking, difficulties standing up and progressively worsening general condition. Camels were between 4 and 17 years old. The animals were clinically examined then blood samples were obtained from the jugular vein for hematological and biochemical analysis. After sedation and aseptically preparation of the caudal part of the neck, CSF sample was withdrawn from the atlanto-occipital articulation. Eighteen biochemical parameters were determined in the CSF for each camel. After centrifugation of CSF fluids (300 x g for 10 min), cell pellet was labelled with monoclonal antibodies against camel leukocyte antigens CD4, CD172a, MHCII. Total protein, albumin, blood urea nitrogen, magnesium, sodium and total bilirubin were significantly higher in CSF of affected in comparison to healthy camels. In the other hand, the concentration of glucose was significant lower in affected camels than that in healthy animals. Flow cytometric analysis of labelled cells could define camel CSF CD4+ T cells, (B cells; MHCII+CD172a-) and macrophages (CD172a+).

Recent Publications

1. Ahmed S H, Omer S A and Gameel A A (2009) Some normal constituents in serum and cerebrospinal fluid in sudanese camels (*Camelus dromedaries*). Assiut Veterinary Medical Journal 55:163-170.
2. Hussen J, Shawaf T, Al-herz A I, Alturaifi H R and Alluwaimi A M (2017) Reactivity of commercially available monoclonal antibodies to human CD antigens with peripheral blood leucocytes of dromedary camels (*Camelus dromedarius*). Open Veterinary Journal doi: http://dx.doi.org/10.4314/ovj.v7i2.12.
3. Vap L and Bohn A A (2015) Hematology of camelids. Veterinary Clinics of North America: Exotic Animal Practice 18(1):41-49.

Biography

Shawaf T is working at Department of Clinical Studies, College of Veterinary Medicine, King Faisal University, Saudi Arabia. His experience includes various programs, contributions and participation in different events for diverse fields of study. His research interests reflect in his wide range of publications in various national and international journals.

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