

Biochemical indices in white Fulani (Zebu) cattle in Nigeria

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RÉSUMÉ

L'auteur a étudié les valeurs de 14 constituants biochimiques du sang du zébu blanc Fulani normal, qui ont été comparées avec celles déjà publiées concernant tant le bétail tropical que celui des régions tempérées. Il conclut que les très légères différences observées entre le bétail tropical et tempéré peuvent être dues à l'influence de facteurs alimentaires ou pathologiques.

INTRODUCTION

In the course of our experimental studies on fascioliasis, we determined biochemical values in White Fulani cattle (7). However, there is a lack of information on some biochemical values in tropical cattle to which we could compare our results.

ODUYE and ADADEVOH (4, 5) provided information on biochemical indices in « apparently normal » sheep and goats in Nigeria. OLUSANYA, EDEWOR and HEATH (8) determined the biochemical values in imported buffaloes in Nigeria. In cattle, ODUYE and FASANMI (6) determined the values of some electrolytes and serum proteins. SAROR and COLES (9) also determined the values of serum proteins and some liver enzymes (SGOT and SGPT) in cattle.

We have, therefore, attempted to provide additional information on biochemical values of indigenous cattle, since such indices may be required in clinical diagnosis and prognosis. We have also compared these values with those obtained for exotic cattle (1).

MATERIALS AND METHODS

Serum samples were separated from clotted blood obtained from a herd of White Fulani cattle slaughtered at the Ibadan municipal abattoir in Southern Nigeria.

After *ante* and *post mortem* inspection, only sera from apparently healthy animals were coded and deep frozen at -20°C until assayed.

Electrolytes : Na and K were determined by standard flame photometry with the aid of a Corning EEL 450 photometer (Evans Electro-selenium Ltd., U. K.). Ca, Cl, HCO_3 and inorganic PO_4 were determined on a Sequential Multiple Analyser (Technicon Instruments Co., New York).

Protein and Metabolites : Total protein, albumin, urea, creatine and bilirubin values were also obtained on the sequential multiple analyser.

Enzymes : Serum glutamate pyruvate transaminase (SGOT) and serum glutamate oxaloacetate transaminase (SGPT) were determined

TABLE 1-Biochemical values in 'normal' white Fulani cattle in Nigeria

Indices	Estimated values (n = 68)	Oduye, Fasanmi, 1971 (n = 150)	Central Veterinary Laboratory Weybridge, 1972
Na (Meq/l)	136.8 ± 1.9	134.8 ± 19.0	142.2 ± 2
K (Meq/l)	8.9 ± 0.21	4.47 ± 0.86	4.4 ± 0.3
Cl (Meq/l)	96.0 ± 0.66	102.37 ± 13.7	100.3 ± 3.5
HCO ₃ (Meq/l)	19.02 ± 1.12	NA	NA
Ca (mg/p.100)	8.61 ± 0.15	9.81 ± 1.52	8.5 ± 11.5
PO ₄ (mg/p.100)	8.87 ± 1.47	5.08 ± 1.05	3.5 ± 6.0
Total protein (g/p.100)	6.57 ± 0.10	7.55 ± 2.50	NA
Albumin g/p.100	2.51 ± 0.05	2.56 ± 1.04	NA
Globulin g/p.100	4.02 ± 0.10	4.96 ± 2.68	NA
Urea (mg p.100)	16.79 ± 1.13	NA	16 ± 8
Creatine (mg p.100)	0.54 ± 0.62	NA	NA
SGOT (C.A. Units)	114.08 ± 9.84	NA	44 ± 6 SF Units
SGPT (C.A. Units)	25.16 ± 3.11	NA	19 ± 13 SF Units
AP (K.A. Units)	17.91 ± 1.1	NA	10

NA = Not available.

by the method of MOHUN and COOK (3). Alkaline phosphatase (AP) was determined as described by KING and ARMSTRONG (2). All the tests were quality controlled.

RESULTS AND DISCUSSION

The values obtained for the 14 biochemical indices measured are presented in table 1. We have provided additional information on bicarbonate, urea, creatine, SGOT, SGPT values and alkaline phosphatase values.

There is agreement between the values we obtained for Na, K, Cl, Ca, total protein and albumin and those of ODUYE *et al.* (6) and Central Veterinary Laboratory, Weybridge (1). Although the latter two authors agreed on values for K and inorganic phosphate, our values for these two indices were higher. The values obtained for SGOT and SGPT were in the range of those obtained by SAROR *et al.* (7) for indigenous White Fulani Cattle.

It, therefore, appears that there is very little difference between biochemical values obtained for normal indigenous and temperate cattle. Any such demonstrable differences could be due to dietary and disease factors.

SUMMARY

The values of 14 biochemical indices in the serum of « normal » White Fulani Cattle were determined. Thus, additional information was provided on bicarbonate, urea, creatinine, SGOT, SGPT and alkaline phosphatase.

The values obtained were compared with those of other estimates on indigenous and exotic cattle. It is concluded that there is very little difference between normal indigenous and temperate cattle and demonstrable differences could be due to dietary and disease factors.

RESUMEN

Indices bioquímicos en los cebues Fulani blancos de Nigeria

El autor estudió los valores de 14 constituyentes bioquímicos de la sangre del cebú Fulani blanco normal que fueron comparados con los ya publicados concernientes tanto el ganado tropical como el de las regiones tempranas. Concluye que la influencia de factores alimenticios o patológicos puede causar las muy ligeras diferencias observadas entre el ganado tropical y temprano.

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