

Passive immune transfer of preterm lambs subjected to prenatal or immediate postnatal corticosteroid therapy

B.M. Justo¹, A.B.G. Vidal¹, F.M. Regazzi¹, M.M. Brito¹, D.S.R. Angrimani¹, R.A. Abreu¹, C.F. Lúcio¹, C.I. Vannucchi¹

¹LIAPP, Department of Animal Reproduction – FMVZ/USP, São Paulo, SP, Brazil.

E-mail: beatriz.justo@usp.br

INTRODUCTION

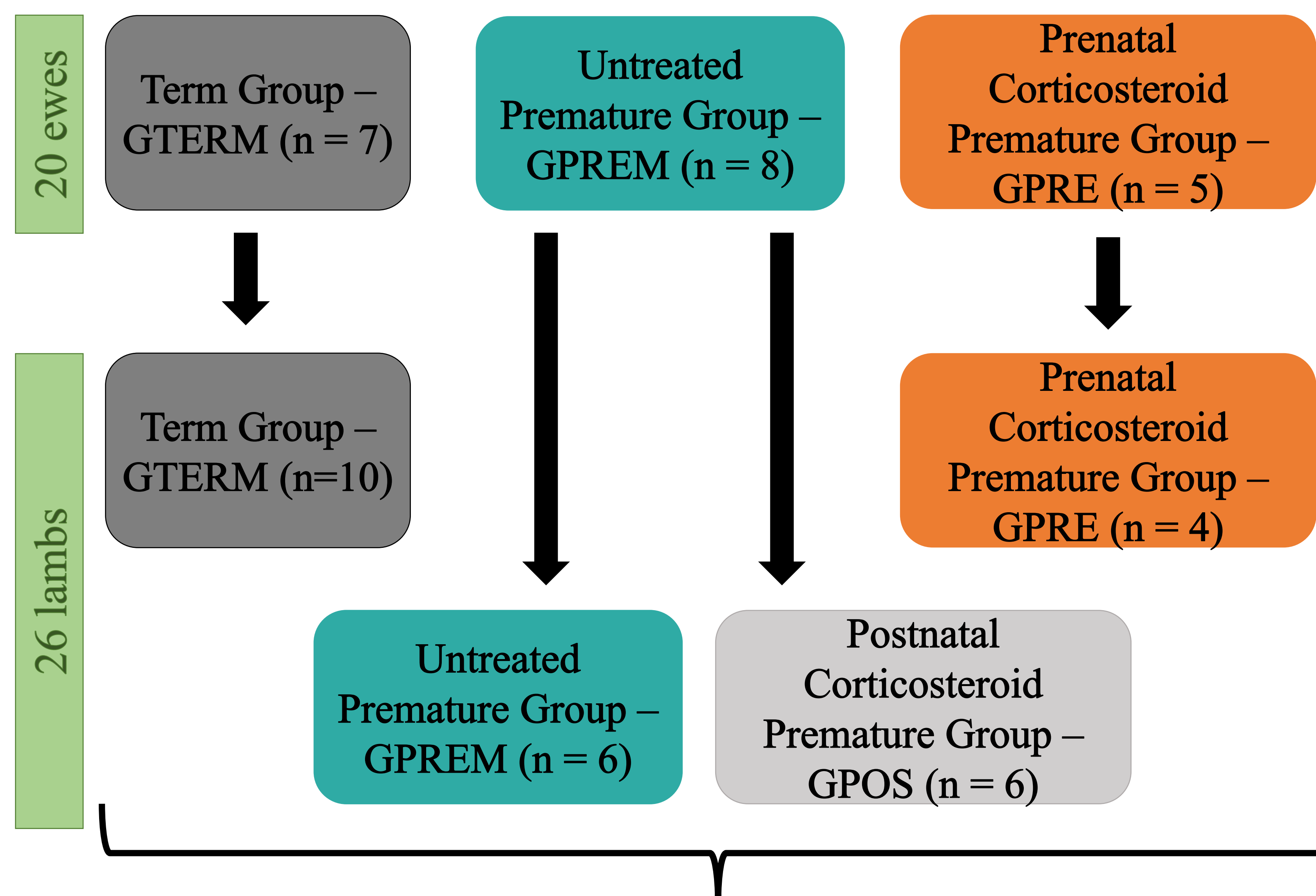
In sheep, neonatal protection is extremely dependent on colostrum ingestion to ensure passive immunity. Prematurity negatively affects passive immune transfer, as the reduction in gestational length reduces the quantity of immunoglobulins transferred to the mammary gland. To minimize the adverse effects of prematurity, antenatal or postnatal corticosteroid therapy are alternatives to induce fetal-neonatal systemic maturity.

OBJECTIVE

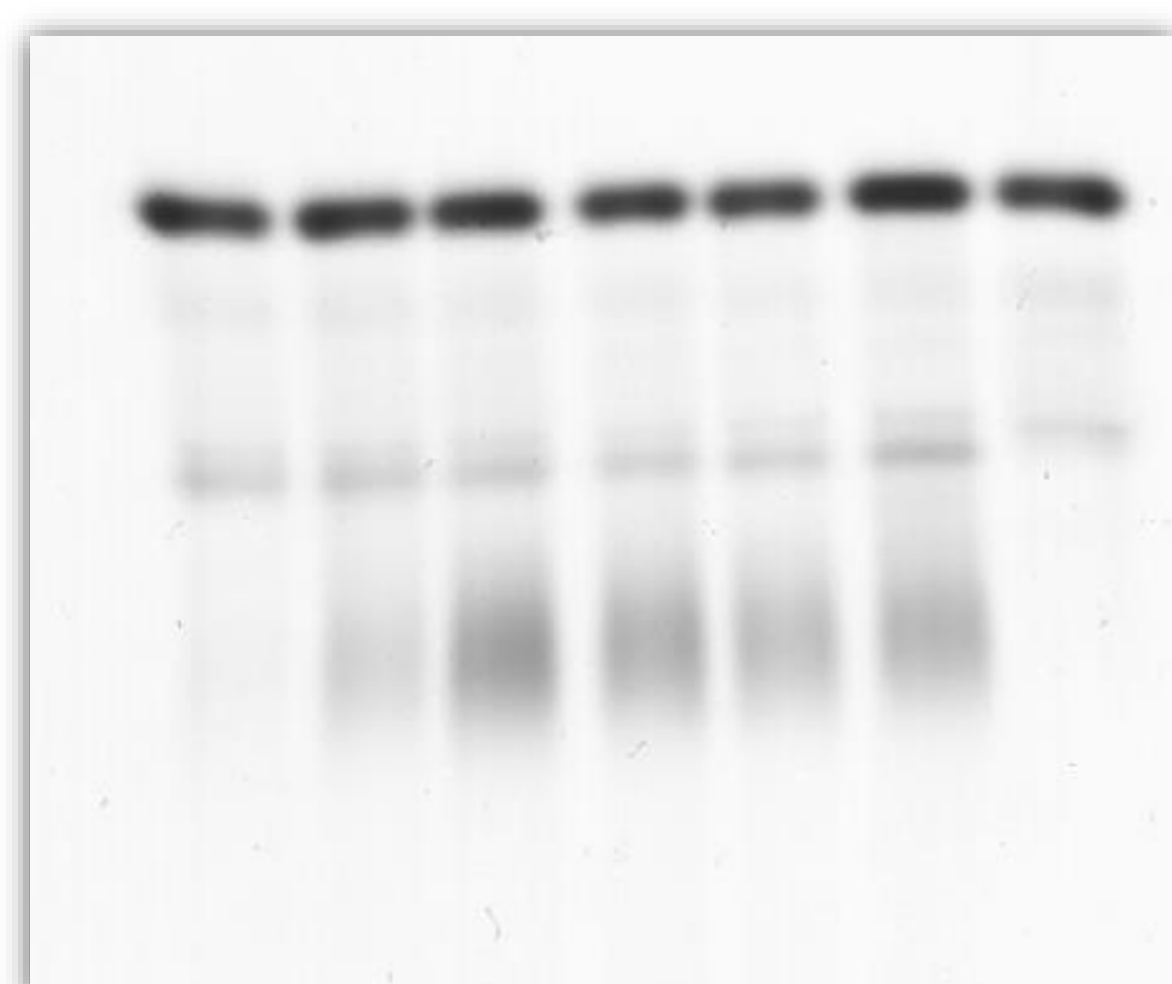
This study aimed to evaluate:

- the quality of colostrum from ewes submitted to prenatal corticosteroid therapy;
- the efficiency of colostrum immunity transfer in preterm lambs subjected to prenatal or postnatal corticosteroid therapy.

METHODS



Blood samples from the lambs and colostrum/milk were collected at birth (0h), 2h, 4h, 12h, 24h, 48h and 72h postpartum to determine the concentrations of total protein and γ -globulins. Data were analyzed by LSD test ($P < 0.05$).



Cellulose acetate electrophoresis was used to determine protein fractions (γ -globulins).

RESULTS

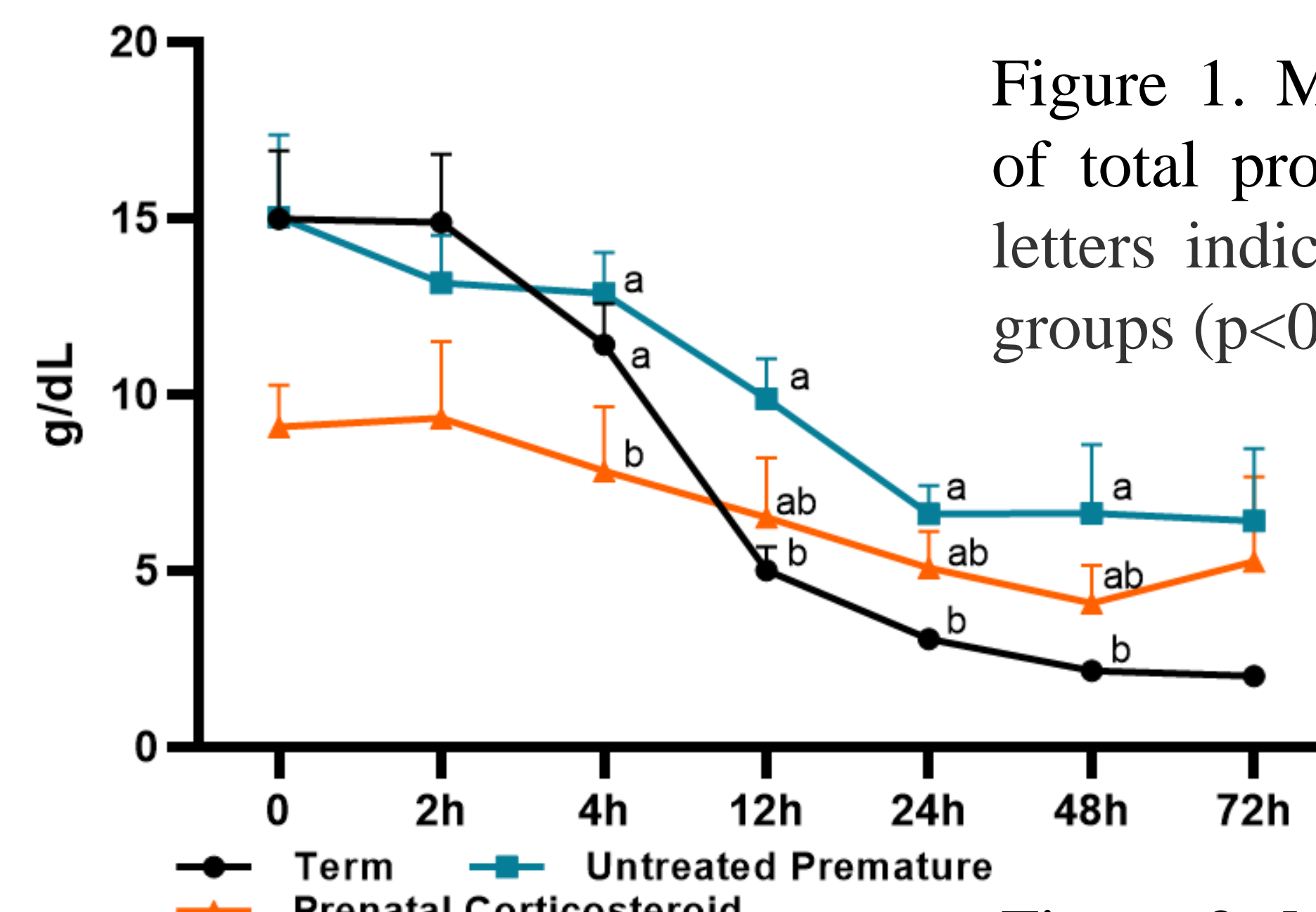


Figure 1. Mean values and standard deviation of total protein in colostrum (g/dL); different letters indicate significant differences between groups ($p < 0.05$).

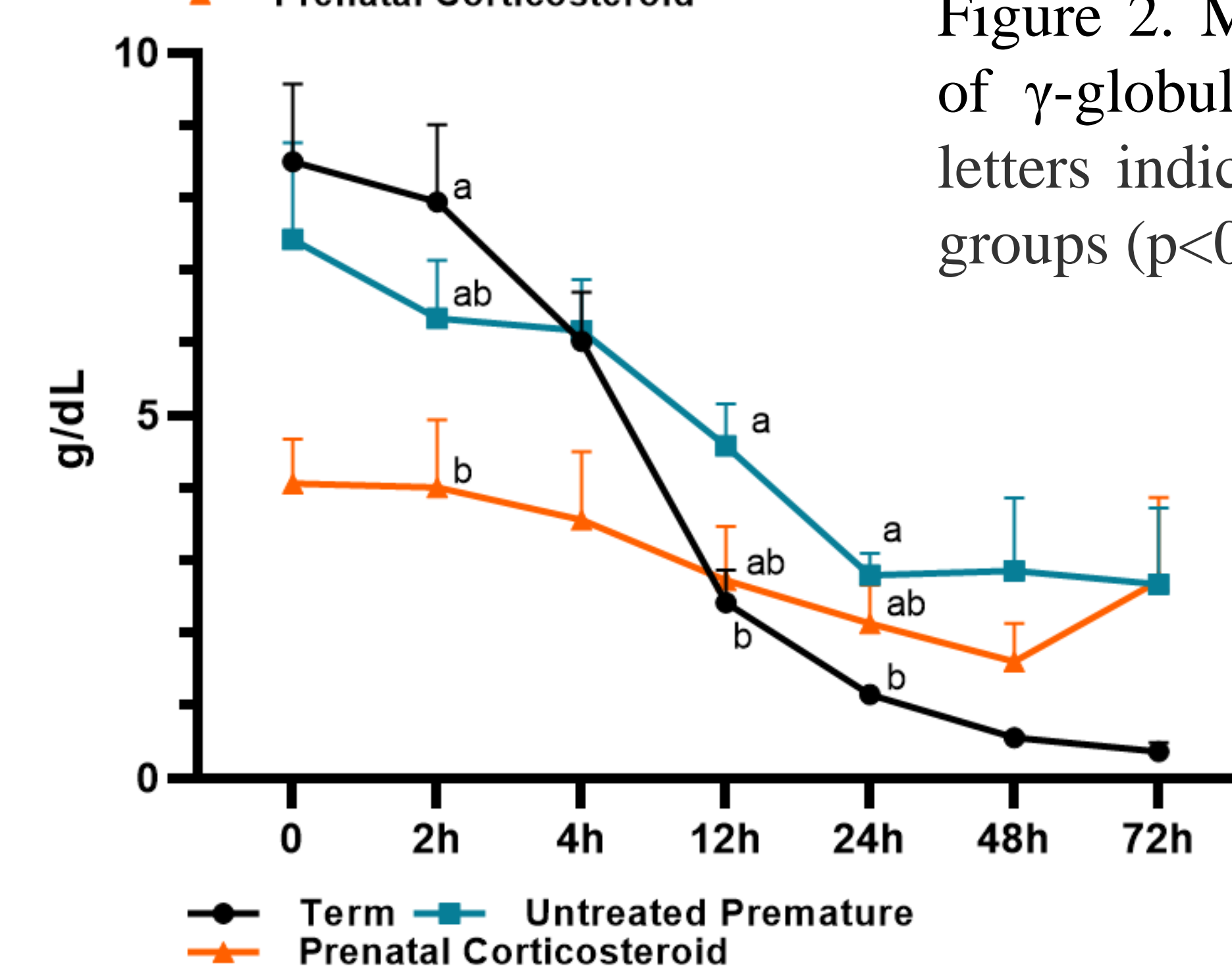


Figure 2. Mean values and standard deviation of γ -globulins in colostrum (g/dL); different letters indicate significant differences between groups ($p < 0.05$).

Compared to GTERM, GPRE showed a lower concentration of γ -globulins in colostrum at 2h and total protein at 4h.

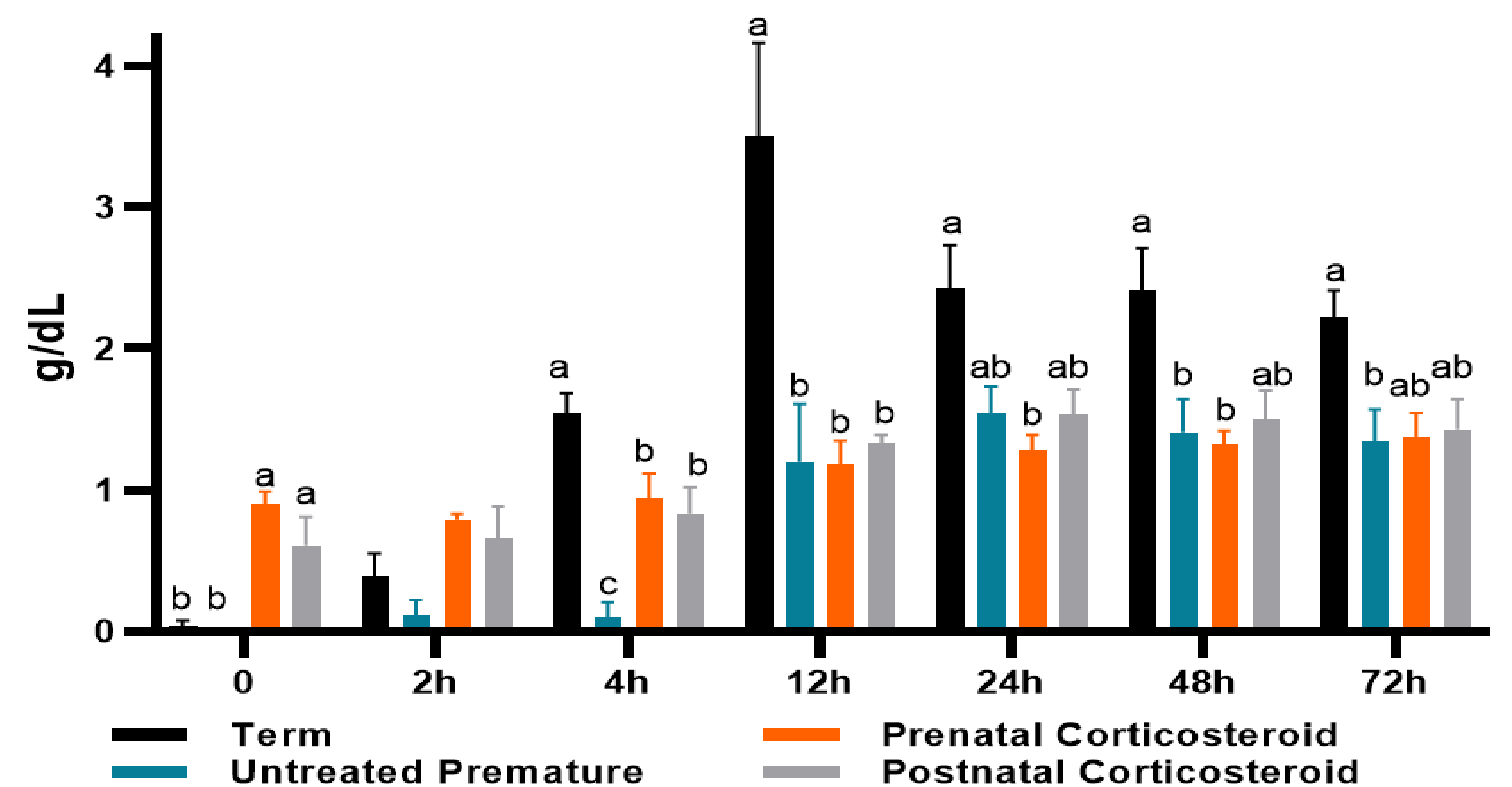


Figure 3. Mean values and standard deviation of γ -globulins in lambs (g/dL); different letters indicate significant differences between groups ($p < 0.05$).

GPRE lambs had a higher serum concentration of γ -globulins than GTERM and GPREM at birth and at 2h. GPREM lambs, on the other hand, had a lower concentration of γ -globulins (less than 0.5 g/dL) up to 4h, when compared to the other groups. Among the preterm lambs, treated lambs had a higher serum concentration of γ -globulins than untreated preterm ones in the first hours of life.

CONCLUSION

Despite the negative influence on the concentration of total protein and γ -globulins in colostrum, corticosteroid therapy increased globulin absorption in the first hours of life in preterm lambs. Prematurity reduced the immunological quality of colostrum; however, the transfer of passive immunity occurred satisfactorily, regardless of maternal or neonatal corticotherapy.