BLOOD GAS PARAMETERS AND ACID-BASE BALANCE OF KIDS FROM NORMAL DELIVERY

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Aims: The aim of this study were to hypothesize the occurrence of acidosis in newborn kids and obtain blood gas and acid-base parameters of kids in the first 24 hours of life.

Methods: To this end, 33 goat kids were used, regardless of their sex. The blood samples were collected by jugular venipuncture, using appropriated syringe with anticoagulant, immediately after birth, five, ten and 15 minutes and 24 hours of life. The blood pH, carbon dioxide partial pressure (pCO₂), total carbon dioxide (TCO₂), bicarbonate concentration (HCO₃⁻) and base excess were determined by using a portable blood gas analyzer using specific cartridges according manufacturing specifications. Data were analyzed using a statistical program. The ANOVA was performed to determine whether there were any significant differences between moments, and mean values were compared by use of a Tukey test. Non-parametric data were analyzed by use of the Friedman test followed by the Dunn test. A value of P ≤ 0.05 was considered significant for all tests.

Results: The values of pH were significantly lower at birth, five, ten and 15 minutes (7.21 ± 0.08; 7.23 ± 0.09; 7.23 ± 0.06; 7.24 ± 0.07) respectively, when compared the gotten values at 24 hours (7.33 ± 0.06). The pCO₂ value was significantly higher at birth (65.61 ± 8.61 mmHg) when compared with the values at five, ten and 15 minutes (61.19 ± 9.48 mmHg, 60.74 ± 7.33 mmHg, 57.70 ± 8.48 mmHg) respectively and decreased until 24 hours old(51.34 ± 7.44 mmHg). The value of HCO₃⁻ at birth was 25.82 ± 2.15 mmol/L and decreased until 15 minutes (25.18 ± 2.61 mmol/L at five; 24.97 ± 2.06 mmol/L at ten and 24.36 ± 2.69 mmol/L at 15 minutes) and, finally, increased at 24 hours (25.85 ± 3.43 mmol/L). The base excess values at birth and five minutes were -1.47 ± 3.61 mmol/L and -2.14 ± 3.58 mmol/L, the values at ten and 15 minutes (-2.49 ± 2.86 mmol/L; -3.09 ± 3.60 mmol/L) were significantly lower when compared the gotten value at 24 hours old (0.44 ± 2.96 mmol/L). The low pH values observed at birth, associated with high values of pCO₂ and the normal levels of HCO₃⁻, characterize respiratory acidosis. Respiratory acidosis is quickly recognized, and initiates a compensatory response increasing ventilation rate associate with the chemical buffering, reducing pCO₂ values in minutes, minimizing the decrease or stabilizing the pH.

Conclusions: The newborn kids had respiratory acidosis during the immediate post-partum period, normalizing at 24 hours of life.