保存條件對山羊與牛血液樣品孕酮及若干生化值之影響

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摘要：動物血液於採血後至離心前的檢體保存條件，會影響隨後血漿或血清中之生化成分。本試驗以山羊及乳牛爲試驗動物，血樣採集後於室溫下保存0-48小時，經分析其孕酮(progesterone)及若干血液生化值濃度。結果顯示牛隻血液檢體中孕酮含量，在室溫下隨保存時間的延長而顯著下降，尤以前6小時之血樣下降最爲顯著；然而山羊之血液檢體則不受影響。暗示血液檢體中孕酮含量會因血球的存在而下降，且代謝孕酮之能力可能具有動物種別差異。另檢測山羊與乳牛血漿與血清中十項血液生化值，結果顯示葡萄糖含量隨採血後至離心時間的延長而明顯降低，尤其是乳牛血液檢體，於室溫保存6小時後，無論血漿或血清葡萄糖含量均降至10 mg/dL以下；而天冬胺酸轉胺酶含量則隨保存時間的延長升高。而其餘血液生化值包括總蛋白質、白蛋白、尿素氮、肌酸酐、總膽紅素、丙胺酸轉胺酶、乳酸鹽去氫酶及鹼性磷酸酶濃度，則無顯著變化。綜合本研究結果顯示，採血後至分離血球前的血樣，若保存於室溫下會影響血漿或血清中孕酮、葡萄糖與天冬胺酸轉胺酶濃度。

關鍵字：牛、山羊、孕酮、血液生化學

前言

利用動物檢體的分析結果來判定其生理或病理狀態，爲臨床診斷學上，非常重要的一環，其中以血液檢體最常被採用。影響血液生化成分的因素很多，諸如血液採集技術、檢體保存方法、分析方法等，均會影響血液生化值 (Koepke *et al*., 1989 ； Yoshida, 1991 ； Hamilton *et al*., 1993 ； Wood *et al*., 1993 ； Burnett *et al*., 1995) 。臨床上血液檢體的經常性檢測項目中，較不穩定者包括血糖、尿酸、鈣及血清酶等 (Spandrio, 1984) 。此外，檢體儲存時造成的水分蒸發，也是影響檢體分析的重要因子。而溶血 (hemolysis) 、黃膽 (jaundice) 、脂血症 (lipemia) 等因素，則是因血液檢體的高度混濁或膽紅素及膽酸等的存在，而干擾測定時酵素反應所造成的誤差 (白等，1996；Clark *et al*.2003) 。爲防止分析誤差，可添加氟化鈉 (sodium fluoride) 來抑制葡萄糖分解酶，以避免血糖的降解；而尿酸及肌酸激酶(creatine kinase, CK) 對於光線較爲敏感，故避光保存也是保存檢體的重要步驟 (白等， 1996) 。

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Influence of storage conditions on progesterone and blood analytes concentrations in blood samples from goats and cows

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Abstract

Storage conditions have always played a crucial role in disparity of clinical findings. This storage conditions have always played a crucial role in disparity of clinical findings. This experiment was undertaken to analyze the influence of storage conditions on progesterone (P_4) and ten different kinds of blood analytes concentrations in blood obtained from goats and cows. The whole blood was stored at room temperature for 0 to 48 hours prior to centrifugation. The enzyme immunoassay results for the concentration of P_4 levels in plasma and serum from cows decreased significantly ($P < 0.05$) with increasing storage time at room temperature. The onset of decline in the P_4 level began fast as evident from the sharp decline at six hours compared to levels in the fresh sample of the same specimen. Interestingly, no such significant decline pattern was noticed in the goat serum and plasma samples assay. Analyzing the samples for blood biochemistry revealed that glucose concentration in both goat and cow decreased significantly ($P < 0.05$) compared to the fresh specimen over the room temperature storage duration. Of the other blood analytes assayed, asparate transaminase (AST) showed increased level with storage duration, while for total protein, albumin, urine nitrogen, creatinine, total bilirubin, alanine transaminase, lactate dehydrogenase, alkaline phosphatase there were no noteworthy changes. This experiment implied that the presence of steroids degrading components in whole blood attributed by the cell components. The same was however, not true for goats, possibly indicating a species variation. Of the analytes chosen, glucose showed decrease with storage time, while AST showed increase.The possible role of these analytes in decrease of P_4 level provides interesting avenue for further research.It is also interesting to find out as to why; the difference in goat and cow exists as evident from our observation.

Key Words : cow, goat, progesterone, blood biochemistry

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