

血液樣本於不同保存溫度狀態下對血鉛濃度 影響之初探

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目標：本研究目的是要瞭解血液樣本在短時間內存放於不同保存溫度狀態下，對血中鉛濃度之影響。**方法：**研究係針對非鉛暴露人員進行初期的探討，共計有12個血液樣本納入本研究。研究對象檢體收集是以內含Sodium Heparin抗凝血劑之真空採血管採集，採集後立即以2ml之ependorf micro test tube分裝檢體並置於室溫、4°C、0°C、-20°C、-85°C等五種溫度下保存。血中鉛的測量，係利用石墨爐原子吸收光譜儀(Graphite furnace atomic absorption spectrophotometer；GFAAS)來測定。**結果：**十二個血液樣本之血鉛分析時間間隔從0.3個月至4.6個月。其結果若以平滑曲線圖來看，研究對象血液樣本於五種不同保存溫度狀態下，血鉛濃度呈現相似的分佈。另以GEE(generalized estimating equation)分析模式發現，血液樣本在儲存時間因素上，並未對其血鉛含量造成顯著的影響，而在儲存溫度之影響因素上，僅於4°C與-85°C儲存之血液樣本，血鉛濃度呈現顯著的差異。**結論：**雖然在4°C與-85°C的儲存溫度狀態下血液樣本的血鉛濃度呈現統計學上的顯著差異，由於此種差異在實質上甚微，因此本研究認為收取非鉛暴露者之血液樣本，並將之於短時間內保存在不同溫度狀態下，其血鉛濃度仍呈現穩定狀態。(中華衛誌 2000；19(6)：462-468)

關鍵詞：血鉛濃度，溫度保存狀態，穩定性。

A preliminary study on the stability of blood lead levels in short-term stored Specimens subjected to various storage temperature conditions

Objectives: To examine the effect of short-term stored blood specimens at various temperature conditions on the laboratory analysis of blood lead levels (BLLs). **Methods:** A total of 12 blood specimens were collected from non-lead exposed individuals using vacuum tube containing sodium heparin as the anticoagulant and were kept in 2ml-ependorf micro test tubes. These specimens were purposely placed at room temperature, 4°C, 0°C, -20°C and -85°C after phlebotomy. Blood lead levels in stored specimens subjected to various storage temperature conditions were analyzed by graphite furnace atomic absorption spectrophotometer (GFAAS). **Results:** The interval between specimen storage and performance of laboratory BLL analysis in these 12 samples ranged from 0.3 to 4.6 months. The distribution of BLLs was nearly identical across the samples subjected to a variety of storage temperature conditions based on the display of smoothing curves. Moreover, the analysis using Generalized Estimating Equation (GEE) revealed a non-significant difference in BLLs in stored samples with different storage intervals. In contrast, there was a significant difference in BLLs in the specimens stored at 4°C and -85°C. **Conclusions:** Although there was a statistically significant difference in BLL in the specimens stored at 4°C and -85°C, the variations among studied samples were negligible from the practical standpoint. We conclude that storage of blood samples at various temperatures does not cause any significant change in BLL in these analyses studied. (*Chin J Public Health. (Taipei): 2000;19(6):462-468*)

Key words: blood lead levels, storage temperature conditions, stability.