Thesis Title Up-date on Value of the Anion Gap in Clinical Diagnosis And Laboratory Evaluation

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ABSTRACT

This study confirmed the reference range for anion gap (5-12 mmol/L) obtained from the ion-selective electrode which was lower than those of previous reference range (8-16 or 9-18 mmol/L)(2,13) determined by the flame photometry and colorimetry. The mean and range of increased anion gaps among hospitalized patients were 16 and 13-20 mmol/L, which lower than the previous study (25 and 19-28 mmol/L); anion gap value exceeding 24 mmol/L was rare. The mean and range of the decreased anion gap were 3 and 2-4 mmol/L, which lower than previous study (6 amd 3-8 mmol/L); value < 2 mmol/L was rare. We report the incidences of normal (59.5%), increased (37.6%), and decreased (2.9%) anion gap among hospitalized patients, which were similar to those previous study obtained from the continuous flow analyzer. The mean and range of the increased and

decreased anion gap in stat hospitalized patients (17,13-23 mmol/L; 3, 2-4 mmol/L) were similar to those in routine hospitalized patients (16,13-19 mmol/L). The most common causes of the increased anion gap (hypertensive disease, chronic renal failure, malignant neoplasms, diabetes mellitus and heart diseases) and decreased anion gap (liver cirrhosis and nephrotic syndrome) among patients in the present study were similar to those of previous study (13). We found 2 cases of IgG multiple myeloma (AG = 2 mmol/L). Clinicians and laboratorians can use the anion gap as clue in the quality control system. They can check the incidences of increased and decreased anion gap. If one finds the high incidence of the markedly increased anion gap (>24 mmol/L) and/or markedly decreased anion gap (<2 mmol/L), he should check the quality control of electrolytes measurement and whether the patients were hypoalbuminemia or hyperglobulinemia.