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Comparison of common clinical chemistry analyte levels between Greiner Bio-One Vacuette tube and glass tube

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Background: Serum separator tubes were introduced 25 years ago and are widely used in the clinical laboratory for collection of blood. Recently, the plastic serum separator tube has become available for blood collection for lightening and flexibility and suitability for automation. However few studies have been reported on stability of the common analytes in this tube.

Methods: We evaluated the concentrations of seventeen commonly ordered analytes: aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP), total protein, albumin, sodium, chloride, calcium, phosphorus, triglyceride, low density lipoprotein (LDL)- cholesterol, potassium, uric acid, blood urea nitrogen (BUN), total cholesterol, glucose, creatinine in sera separated in plain glass tubes (no gel) and in sera separated in the plastic Greiner Bio-One Vacuette tubes containing serum separator gel (Greiner Bio-One, Kremsm Ünstler, Austria) by Toshiba 200-FR Neo.

Results: Results were analyzed using two-tailed paired t-tests and Bland-Altman plots. Results from 9 common analytes (glucose, total cholesterol, BUN, potassium, LDL-cholesterol, inorganic phosphorus, calcium, sodium, chloride) were statistically different between glass tube and plastic Greiner Bio-One Vacuette tube, but the differences were not considered to be clinically significant.

Conclusion: We conclude that the plastic Greiner Bio-One Vacuette tubes are suitable for the collection of blood and storage of serum for common analytes.

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