

Abstract details

Conference	4th Joint EFLM-UEMS Congress - Laboratory medicine at the clinical interface - Warsaw - September 21-24th 2016
Abstract number	0057
Last modified	6 May 2016
Abstract submission date	Unknown

GLUCOSE AND ALBUMIN QUANTIFICATION ARE POTENTIAL INDICATORS OF THE STABILITY OF LONG-TERM STORED SAMPLES FOR GLYCATED ALBUMIN MEASUREMENT?

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Keywords:

Abstract text

Monitoring the glycemic status is most important for cardiovascular risk estimation. Glycated albumin (GA%) is receiving growing interest as a biomarker which could support clinician's efforts for diabetes management and to prevent long-term cardiovascular-related complications. For research purposes, samples stored at -20°C for more than 6 months seem not suitable for GA% quantification due to a time-dependent increase in GA% level.

Our aim is to assess whether stored samples are suitable for GA% quantification, exploring the usefulness of glucose (Glu) and albumin (Alb) as indicators of stability. We quantified GA%, Alb and Glu levels on 60 serum samples of healthy non-diabetic individuals (20 males and 40 females; mean age: 38.3±12.47 years; body mass index: 25.94±2.46 kg/m²) stored at -20°C for 3.64±0.57 years

(T1). Alb and Glu values at drawing time (T0) were also available. GA% was quantified using QuantILab Glycated Albumin assay.

Mean GA% was 31.69 ± 5.77 . Compared to T0, both Alb and Glu decreased at T1 (-25% and -16%, respectively; $p < 0.001$ for both). GA% correlated inversely with Alb at T1 (-0.286, $p = 0.027$) and directly with storage time (0.357, $p = 0.005$). No correlations were observed with Glu and overt time changes in Glu and Alb (T0-T1).

Obtained GA% values are not reliable, being typical of diabetic individuals. Alb instability in samples stored at -20°C seems to be one of the main factor affecting GA% quantification and could enforce previously published data.

A suspicious decreased value of Alb compared to time of freezing may suggest that stored samples are inadequate for GA% quantification.

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