

Tests of the individual mean response have more power than tests of the area under curve (AUC) in glucose tolerance tests

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Methods

1. is a more powerful test. That is, it takes fewer samples to provide sufficient evidence of the direction of the treatment effect.
2. has the expected Type I error rate, while that of the comparison of individual time points is inflated.
3. has the expected Type I error rate conditional on the difference in baseline between treatments, while that of the comparison of AUC increases with the magnitude of the baseline difference.

methods - make this into a table

area methods 1. auc – a weighted mean, where weights are a function of the time on either side of the point. Biased effects simply because baseline is part of area. Smaller baseline > more area 2. iauc – analogous to change score, biased effects. Bigger baseline > more area. Increase 3. area-cov – weighted mean but no baseline bias. Should increase precision and power.

mean methods - easy to implement in any stats program.

multivariate – need R or scripting

Results

Discussion

References

Table 1: Methods for comparing the

Methods	Description
Linear models of AUC	
AUC	Area under the curve
IAUC	Incremental area under the curve
Area-cov	Area under the post-baseline curve with baseline covariate
Linear models of the mean response	
Mean	Mean of the post-baseline measures
Change	Change from baseline of the post-baseline measures
Mean-cov	Mean of the post-baseline measures with baseline covariate
Multivariate linear models	
Multi-t	Multiple t-tests
RM-ANOVA	Repeated measures ANOVA
CLDA	Constrained longitudinal data analysis
LDA-cov	Longitudinal data analysis with baseline covariate
Roast	Rotational test of multivariate response
O'Brien	Non-parametric test of multivariate response