

Introduction

The AGP is a valuable method for data display and analysis. We seek to make it even more effective for use by patients and physicians, and make it more informative and self-explanatory.

Problem 1. Many people do not understand the information regarding glycemic variability, risk of hypo- and hyperglycemia, and relationships to dose and timing of insulin and other medications.

Solution 1. The AGP can be enhanced by:
1) display of glycemic variability (IQR, SD)
2) risk of hypo- and hyperglycemia (%Low, %High)
3) expected Total, Basal and Bolus insulin rates/doses and action, synchronized with the glucose profile.

Problem 2. The standard AGP places too much emphasis on the hyperglycemic region and too little on the hypoglycemic region, making it possible to overlook important episodes and risks of hypoglycemia.

Solution 2. The AGP can be enhanced by use of a log scale for glucose to expand the hypoglycemic range and compress the hyperglycemic range. This results in better symmetry and a nearly Gaussian distribution. In turn, this facilitates calculation of the expected risks of hypo- and hyperglycemia.

Problem 3. Post-prandial excursions are blurred and obscured in the AGP due to variability in the timing of meals from day to day, variability in the pre-meal glucose, different shape curves for different types of meals and from day to day.

Solution 3. Analysis can be improved by synchronizing the glucose profile at the time of onset of meals, subtracting the baseline or premeal values, and using percentiles rather than individual days.

Problem 4. The standard 24 h AGP can make it difficult to understand the glycemic patterns during the nocturnal period.

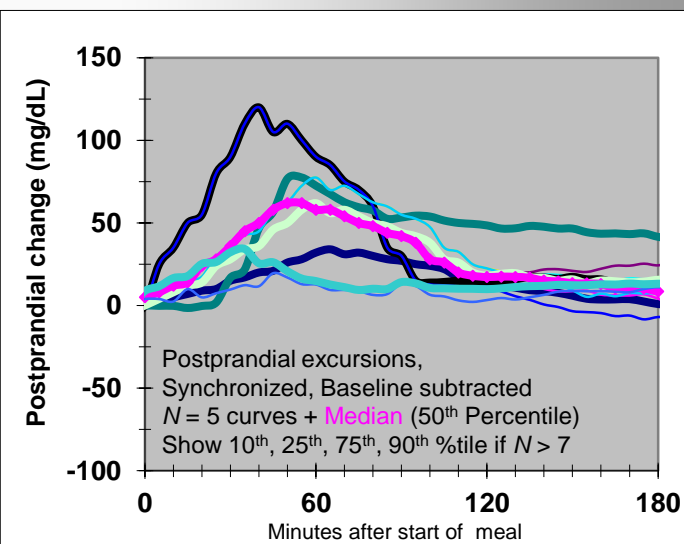
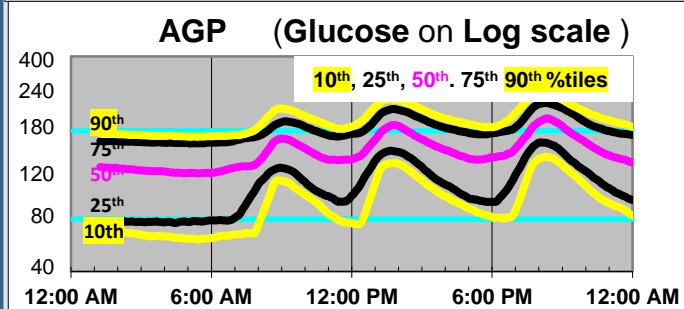
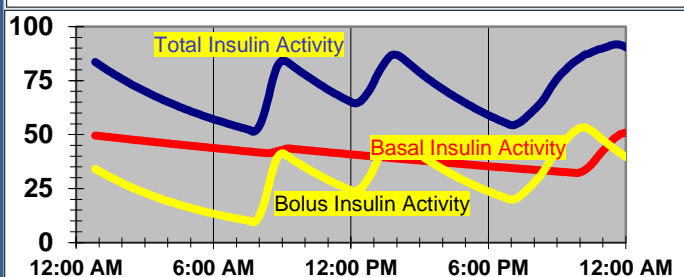
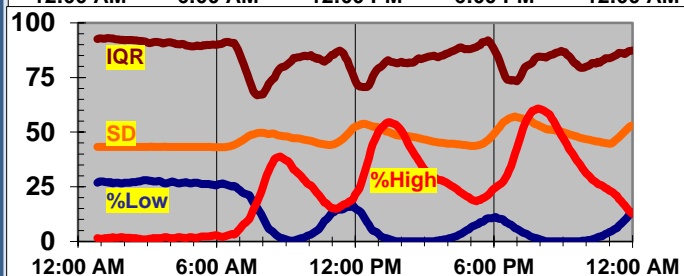
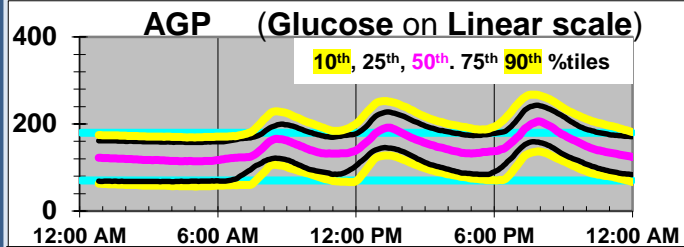
Solution 4. Analysis of nocturnal glycemia can be facilitated by use of a 48 h display or a noon-noon display.

References

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Results



Conclusions

- I. The AGP can be enhanced by display of the following:
 - Glycemic Variability (IQR or SD_b) by time of day
 - %Hypo- and %Hyperglycemia by time of day
 - Insulin Effect by time of day (Total, Basal, Bolus)
- II. Improve Resolution of Hypoglycemic region
 - Log transform of Glucose
 - Expands hypoglycemia region
 - Compresses hyperglycemia region
- III. The principles of the AGP can be applied to Prandial Excursions, using percentiles and distributions,
 1. Synchronize by onset of meal
 2. Baseline-subtract pre-meal glucose
 3. Show percentiles rather than individual curves
 4. Identify patterns of prandial excursions