MiniMed™ 780G with SmartGuard™ function

Advanced AID System
use of microboluses for basal insulin requirements
approved for Humalog U100 and Novo Rapid U100
aged 7 years plus
average total daily dose of insulin (TDD) ≥8 IUs up to a maximum of 250 IUs/day

Calculate

Algorithm

- the algorithm calculates parameters from the total daily insulin calculated from past 2 to 6 days
- requires entry of all conventional pump parameters to use AID mode

additionally required pump parameters when starting SmartGuard™ function

- active insulin time (duration of action of insulin)
  - 2 to 8 hours
- glucose target set point
  - 100 mg/dl, 110 mg/dl, 120 mg/dl resp. 5.6 mmol/l, 6.1 mmol/l, 6.7 mmol/l

Auto-correction of SmartGuard™ function

- correction target value is 120 mg/dl resp. 6.7 mmol/l
- if maximum basal insulin delivery (+150%) has been reached and the glucose value is >120 mg/dl resp. 6.7 mmol/l, automatic correction bolus may be given every 5 minutes
- no autocorrection boluses are given when temporary glucose target value is set to 150 mg/dl (8.3 mmol/l)
- additional manual corrections may be recommended by the system if the entered glucose value is above 120 mg/dl resp. 6.7 mmol/l depending on the algorithm calculations for insulin requirement

Auto-basal rate adjustment of the SmartGuard™ function

- microboluses for basal insulin requirements are calculated automatically and delivered every 5 minutes

Special features of the SmartGuard™ function

- automatic exit to Manual Mode under specific conditions
  - 7 hours of maximum auto-basal delivery followed by 4 hours in “Safe Basal”
  - 3-6 hours of minimal auto-basal delivery followed by 4 hours in “Safe Basal”
  - automatic continuation in “Safe Basal” in case of missing required BG entries
  - return to “Manual Mode” after a further 4 hours in “Safe Basal”
- meal bolus amount is corrected upwards,
  - when a correction bolus is calculated based on high glucose and low insulin on board
- meal bolus amount is corrected downwards,
  - when a risk of postprandial hypoglycaemia is predicted (safe meal bolus)
- mealtime information is stored for future bolus adjustments
- exercise mode
  - target glucose value can be temporarily raised to 150 mg/dl (8.3 mmol/l)
  - no auto-correction in exercise mode

Adjust

User can modify in SmartGuard™ function

- insulin-to-carb (I:C) ratios (meal bolus)
  - biggest impact on glycaemia and time in target range
- active insulin time
  (is not to be considered physiologically here)
  - a shorter IAT makes correction boluses more aggressive
  - more likely to be shorter than in manual mode (2 to 3 hours)
  - no effect on microboluses for basal insulin requirements

MiniMed™ 780G with SmartGuard™ function

User cannot modify in SmartGuard™ function

- basal insulin delivery
- insulin sensitivity factor
- correction target value of 120 mg/dl resp. 6.7 mmol/l

Revert

Revert to "Manual Mode"

- after maximum (over 7+4 hours) or minimum (3-6 + 4 hours) insulin delivery
- loss of CGM data
- concerns regarding sensor integrity

Educate

Key education points

- SmartGuard™ function can display "BG required"
  - user is prompted to enter a fingerstick BG value into the pump
    - this is different from sensor calibration
    - the user should understand the difference
- follow system prompts for "BG required"
- affecting automatic insulin delivery via changes of insulin-to-carb ratios (10-25 %), active insulin time (mostly 2 hours) and target set point (mostly 100 mg/dl; 5.6 mmol/l)
- no temporary basal rates and/or combo boluses possible
- "Temporary target" of 150 mg/dl (8.3 mmol/l) allows for temporary reduction of basal insulin delivery in SmartGuard™ function

Sensor / Share

Minimed Guardian™ Sensor 3

- requires at least 2, better 3, calibrations per day for optimal accuracy
- system may prompt for "BG required" to stay in Auto Mode
- sensor life up to 7 days

Guardian™ Sensor 4

- no calibration required
  - 1 calibration needed when starting the SmartGuard™ function
  - optional calibration possible
  - system may prompt for "BG required" to stay in Auto Mode
  - sensor life up to 7 days

General

- the system uses all blood glucose entries for calibration
  - if calibration results in a cal. error, a new fingerstick BG value is requested
- sensor glucose values can be used to make treatment decisions and are automatically used in the bolus calculator

Share

- Bluetooth connection with smartphone (MiniMed™ Mobile app) as secondary pump display
- automatic data storage in the cloud
- glucose values can be monitored remotely via the Follow app (Carelink™ Connect App)