

SUPPLEMENTARY DATA

Supplementary Table 1. Clinical Characteristics, Glycemic Control and Treatment of Patients With and Without a History of Diabetes

Variable	No-Diabetes	Diabetes	P-Value
Number of patients, n (%)	150	152	
Male gender, n (%)	115 (77)	103 (68)	0.08
Age, yrs	63.8±10.2	64.0±9.1	0.84
BMI, Kg/m ²	27.9±19.9	29.7±22.3	<0.001
APACHE score	21.8±3.8	22.3±3.2	0.29
Surgery			0.09
- Elective, n (%)	20 (13)	28 (18)	
- Urgent, n (%)	129 (86)	121 (80)	
- Emergency, n (%)	0 (0)	3 (2)	
ICU LOS, days	3.8±5.3	4.5±9.9	0.61
Glycemic Control			
Admission HbA1C, %	5.6±0.5	8.0±2.0	<0.001
Randomization BG, mg/dl	159.0±22.5	172.7±29.7	<0.001
BG during ICU stay, mg/dl	135.0±15.7	148.9±18.0	<0.001
- BG during ICU day 1, mg/dl	137.0± 18.1	152.0± 20.9	<0.001
- BG during ICU day 2, mg/dl	135.2± 17.9	142.5± 24.5	0.10
% BG readings > 200 mg/dl during CII	2.0±5.2	8.7±10.9	<0.001
% BG readings > 300 mg/dl during CII	0.0±0.0	0.3±1.7	0.008
Hospital BG after ICU stay, mg/dl	124.7±13.4	160.3±28.1	<0.001
Hypoglycemia			
Patients with BG < 70 mg/dl in ICU, n (%)	6 (4)	9 (6)	0.60
BG readings < 70 mg/dl in ICU, %	0.3±2.2	0.2±0.9	0.47
Patients with BG < 70 mg/dl in the hospital after ICU, n (%)	15 (10)	45 (30)	<0.001
Patients with BG < 70 mg/dl after hospital discharge, n (%)	1 (1)	45 (32)	<0.001
Insulin therapy			
Patients treated with CII in ICU, n (%)	129 (86)	150 (99)	<0.001
Duration of CII, hours	16.9±19.1	31.3±24.9	<0.001
Total insulin during CII, units/day	18.6±24.3	46.5±54.2	<0.001
Patients transitioned to SC basal or basal bolus insulin after ICU, n (%)	73 (49)	149 (98)	<0.001
Total insulin therapy after ICU, units/day	12.3±18.8	55.3±31.7	<0.001
Patients treated with insulin after hospital discharge, n (%)	6 (4)	90 (59)	<0.001

Data are mean ± standard deviation, CII= continuous insulin infusion; ICU= intensive care unit; BG= blood glucose; SC: subcutaneous

Supplementary Table 2. Transition to Subcutaneous Insulin Orders

- Nutrition: Start clear liquid diet on the day after extubation, advance diet to a 2000 calories solid diabetic diet as tolerated.
- After discontinuation of IV insulin, patients with or without diabetes requiring > 1 unit/h start SC basal or basal/bolus insulin regimen to maintain a BG target between 100 mg/dl and 140 mg/dl before meals.
- Patients requiring <1 unit/h of IV infusion will be followed without scheduled insulin (only correction doses before meals for BG > 140 mg/dl).

Starting subcutaneous insulin orders

- Subcutaneous insulin should be given 4 hours before discontinuation of insulin infusion.
- Total daily insulin dose will be calculated from the mean insulin rate during the last four hours of insulin infusion (for example, if the rate during the last 4 hrs is 2 U/hr, the total daily insulin dose will be 48 U/day).
- Half of total insulin daily dose will be given as glargine and half as lispro (rapid acting insulin analog).
- Glargine insulin will be given once daily, at the same time of the day. Lispro will be given in three equal doses before meals. To prevent hypoglycemia, if a subject is not able to eat, the dose of lispro will be held.
- Supplemental (correction) insulin for BG > 140 mg/dl will be given per “sliding scale” protocol.

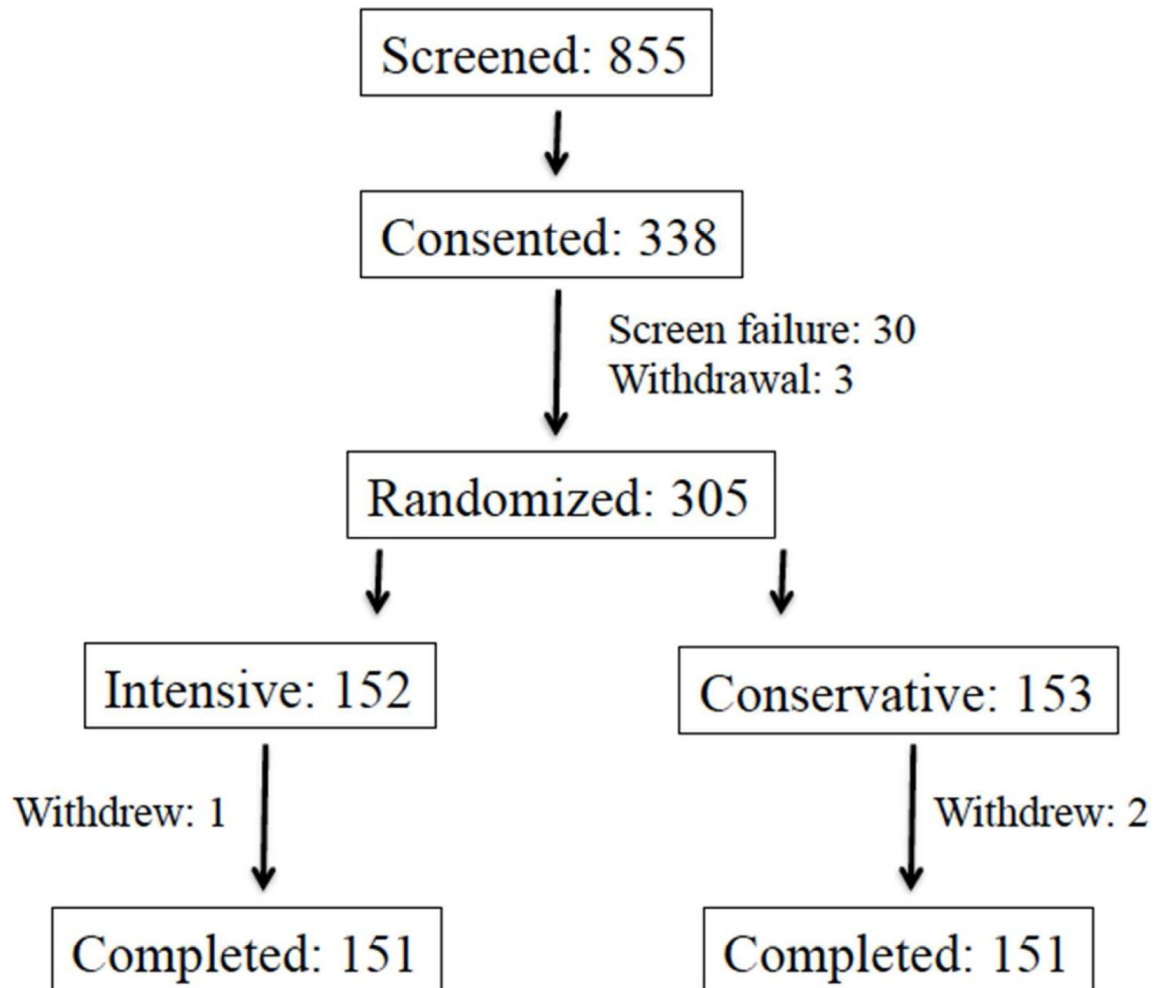
Maintenance insulin regimen and subcutaneous insulin dose adjustment.

- The basal (glargine) daily dose will be adjusted as follow:
 - Fasting and pre-meal BG between 100-140 mg/dl without hypoglycemia the previous day: no change
 - Fasting and pre-meal BG between 140-180 mg/dl without hypoglycemia: increase glargine dose by 10% every day
 - Fasting and pre-meal BG >180 mg/dl without hypoglycemia the previous day: increase glargine dose by 20% every day
 - Fasting and pre-meal BG between 70-99 mg/dl without hypoglycemia the previous day: decrease glargine dose by 10-20% every day
 - If a patient develops hypoglycemia (BG <70 mg/dL), decrease glargine total daily dose by 30%.

Blood glucose monitoring during subcutaneous insulin therapy. BG will be measured before each meal and at bedtime (or every 6 hours if a patient is not eating) using a glucose meter during the hospital stay.

Supplementary Figure 1. Flow Chart

Study Flow Chart



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Supplementary Figure 2. Frequency of Perioperative Complications in Patients With and Without a History of Diabetes Prior to Surgery. No difference in composite of complications, wound infection, pneumonia, respiratory failure and major cardiovascular events (MACE) between patients with and without diabetes, however, mortality and acute kidney injury are higher in patients with diabetes compared to those without diabetes.

Open bars: Subjects without a known history of diabetes, Filled bars: history of diabetes.

AKI: Acute kidney injury, MACE: Major cardiovascular events.

*p<0.05.

