Supplementary Table 1: Search strategies

a) OVID search strategy

1	exp Diabetes Mellitus/
2	diabet*.tw.
3	1 or 2
4	hyperglyc*.ab,ti.
5	((serum* or level* or blood*) adj5 (glucose* or sugar* or level*)).ab,ti.
6	exp Hyperglycemia/
7	exp Blood Glucose/
8	4 or 5 or 6 or 7
9	3 and 8
10	exp Adrenal Cortex Hormones/ad, ae, dt, to [Administration & Dosage, Adverse Effects, Drug Therapy, Toxicity]
11	exp Steroids/ad, ae, dt, th, to [Administration & Dosage, Adverse Effects, Drug Therapy, Therapy, Toxicity]
12	((corti* or predni* or glucocorticoid* or steroid* or 'adrenal cortex hormone' or beclomethasone or betamethasone or budesonide or clobetasol or desoximetasone or dexamethasone or diflucortolone or flumethasone or 'fluocinolone acetonide' or fluocinonide or fluocortolone or fluorometholone or fluprednisolone or flurandrenolone or 'melengestrol acetate' or methylprednisolone or paramethasone or prednisolone or prednisone or triamcinolone or aldosterone or corticosterone or '18 hydroxycorticosterone' or cortisone or cortodoxone or hydrocortisone or tetrahydrocortisol or tetrahydrocortisone or '18 hydroxydesoxycorticosterone' or 'desoxycorticosterone acetate' or '17 alphahydroxypregnenolone' or hydroxysteroid* or finasteride) adj10 (effect* or influenc* or impact* or therap* or medic* or induc* or administ* or dosage or treatm*)).ab,ti.

13	10 or 11 or 12
14	exp Hypoglycemic Agents/
15	(intensive insulin or glucose or basal bolus or basal-bolus or multiple-dose insulin or basal insulin or prandial insulin or continuous subcutaneous insulin infusion or acetohexamide or biphasic insulins or buformin or butoxamine or carbutamide or chlorpropamide or gliclazide or glipizide or glyburide or insul* or insulin aspart or insulin lispro or isophane insulin or lente insulin or long-acting insulin or regular pork insulin or short-acting insulin or ultralente insulin or metformin or phenformin or tolazamide or tolbutamide).ab,ti.
16	14 or 15
17	exp Guideline/
18	((glyc* or hyperglyc* or diab* or gluco* or clinic*) adj10 (guide* or manage* or contro* or treatm* or therap* or protoc* or 'expert opinion' or target* or adjust* or admin* or chang* or regim* or requir* or monitor*)).ab,ti.
19	((treat* or diseas* or therap* or proced* or proto* or clinic*) adj10 (guid* or sugg* or advice* or recommend* or manage* or rule* or outline* or princip* or 'evidence based' or contro* or 'expert opinion' or regim*)).ab,ti.
20	17 or 18 or 19
21	9 and 13 and 16 and 20
22	limit 21 to animals
23	limit 22 to humans
24	22 not 23
25	21 not 24
26	limit 25 to yr="2001 -Current"

b) EMBASE and Cochrane library search strategy

1	'diabetes mellitus'/exp
2	diabet*
3	#1 OR #2
4	hyperglyc*:ab,ti
5	((serum* OR blood* OR level*) NEAR/5 (glucose* OR sugar* OR level*)):ab,ti
6	'hyperglycemia'/exp
7	'blood glucose level'/exp
8	#4 OR #5 OR #6 OR #7
9	#3 AND #8
10	'corticosteroid'/exp/dd_do,dd_dt,dd_ae,dd_to,dd_ad,dd_it
11	((corti* OR predni* OR glucocorticoid* OR steroid* OR 'adrenal cortex hormone' OR beclomethasone OR betamethasone OR budesonide OR clobetasol OR desoximetasone OR dexamethasone OR diflucortolone OR flumethasone OR 'fluocinolone acetonide' OR fluocinonide OR fluocortolone OR fluorometholone OR fluprednisolone OR flurandrenolone OR 'melengestrol acetate' OR methylprednisolone OR paramethasone OR prednisolone OR prednisone OR triamcinolone OR aldosterone OR corticosterone OR '18 hydroxycorticosterone' OR cortisone OR cortodoxone OR hydrocortisone OR tetrahydrocortisol OR tetrahydrocortisone OR '18 hydroxydesoxycorticosterone' OR 'desoxycorticosterone acetate' OR '17 alphahydroxypregnenolone' OR hydroxysteroid* OR finasteride) NEAR/10 (effect* OR influenc* OR impact* OR therap* OR medic* OR induc* OR administ* OR dosage OR treatm*)):ab,ti
12	#10 OR #11

13	'antidiabetic agent'/exp
14	'intensive insulin':ab,ti OR glucose:ab,ti OR 'basal bolus':ab,ti OR 'basal-bolus':ab,ti OR 'multiple-dose insulin':ab,ti OR 'basal insulin':ab,ti OR 'prandial insulin':ab,ti OR 'continuous subcutaneous insulin infusion':ab,ti OR acetohexamide:ab,ti OR 'biphasic insulins':ab,ti OR buformin:ab,ti OR butoxamine:ab,ti OR carbutamide:ab,ti OR chlorpropamide:ab,ti OR gliclazide:ab,ti OR glipizide:ab,ti OR glyburide:ab,ti OR insul*:ab,ti OR 'insulin aspart':ab,ti OR 'insulin lispro':ab,ti OR 'isophane insulin':ab,ti OR 'lente insulin':ab,ti OR 'long-acting insulin':ab,ti OR 'regular pork insulin':ab,ti OR 'short-acting insulin':ab,ti OR 'ultralente insulin':ab,ti OR metformin:ab,ti OR phenformin:ab,ti OR tolazamide:ab,ti OR tolbutamide:ab,ti
15	#13 OR #14
16	'practice guideline'/exp
17	'diabetic control'/exp
18	((treat* OR diseas* OR therap* OR proced* OR proto* OR clinic*) NEAR/10 (guid* OR sugg* OR advice* OR recommend* OR manage* OR rule* OR outline* OR princip* OR 'evidence based' OR contro* OR 'expert opinion' OR regim*)):ab,ti
19	((glyc* OR hyperglyc* OR diab* OR gluco* OR clinic*) NEAR/10 (guide* OR manage* OR contro* OR treatm* OR therap* OR protoc* OR 'expert opinion' OR target* OR adjust* OR admin* OR chang* OR regim* OR requir* OR monitor*)):ab,ti
20	#16 OR #17 OR #18 OR #19
21	#9 AND #12 AND #15 AND #20
22	#9 AND #12 AND #15 AND #20 AND [animals]/lim
23	#9 AND #12 AND #15 AND #20 AND [humans]/lim AND [animals]/lim
24	#22 NOT #23
25	#21 NOT #24
26	#25 NOT [conference abstract]/lim

27	#26 AND (2001:py OR 2002:py OR 2003:py OR 2004:py OR 2005:py OR 2006:py OR 2007:py OR 2008:py OR 2009:py OR 2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2016:py)

c) Google advanced search

"management" or "steroid therapy" or "guideline" and diabet* or hypergly* or corti* or predni* or glucocorticoid* or steroid*or glycemic control

Restriction to PDF Files.

Supplementary Table 2: Risk of bias

a) Risk of bias in five RCTs for seven domains and four different outcomes: mean BGL, time in target glucose range, insulin dose, hypoglycemia

Randomized control trials (all open-label and parallel-group {except Gerards 1 cross over design})							
First author (year)	**Risk of bias**						
	Sequence generation	**Allocation concealment**	**Selective reporting**	**Other sources of bias**	**Blinding (participants and personnel)**	**Blinding (outcome assessment)**	**Incomplete outcome data**
Gerards (2016) [1]	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **high** -Time in target range: **high** -Insulin dose: **high**- Hypoglycemia: **high** -Overall: **high**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **high** -Hypoglycemia: **high** -Overall:**n/a**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**
Grommesh (2016) [2]	-Mean BGL: **nk** -Time in target range: **nk** -Insulin dose: **nk** -Hypoglycemia: **nk** -Overall: **nk**	-Mean BGL: **nk** -Time in target range: **nk** -Insulin dose: **nk** -Hypoglycemia: **nk** -Overall: **nk**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **high** -Time in target range: **high** -Insulin dose: **high** -Hypoglycemia: **high** -Overall: **high**	-Mean BGL: **high** -Time in target range: **high** -Insulin dose: **high** -Hypoglycemia: **high** -Overall: **high**	-Mean BGL: **high**-Time in target range: **high** -Insulin dose: **high** -Hypoglycemia: **high**- Overall: **high**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**
Lakhani (2018) [3]	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **nk** -Time in target range: **nk** -Insulin dose: **nk** -Hypoglycemia: **nk** -Overall: **nk**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **high** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **high** -Time in target range: **high** -Insulin dose: **high** -Hypoglycemia: **high** -Overall: **high**	-Mean BGL: **high** -Time in target range: **high** -Insulin dose: **high** -Hypoglycemia: **high**- Overall: **high**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **high** -Hypoglycemia: **low** -Overall: **low**
Radhakutty (2017) [4]	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **lo**w	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **high** -Time in target range: **high** -Insulin dose: **high**- Hypoglycemia: **high** -Overall: **high**	-Mean BGL: **high** -Time in target range: **high** - Insulin dose: **high** -Hypoglycemia: **high**- - Overall: **high**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**
Ruiz de Adana (2016) [5]	-Mean BGL: **high** -Time in target range: **high** -Insulin dose: **high** -Hypoglycemia: **high** -Overall: **high**	-Mean BGL: **nk** -Time in target range: **nk** -Insulin dose: **nk** -Hypoglycemia: **nk** -Overall: **nk**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**	-Mean BGL: **high** -Time in target range: **high** -Insulin dose: **high** -Hypoglycemia: **high** -Overall: **high**	-Mean BGL: **high**-Time in target range: **high** -Insulin dose: **high** -Hypoglycemia: **high** -Overall: **high**	-Mean BGL: **low** -Time in target range: **low** -Insulin dose: **low** -Hypoglycemia: **low** -Overall: **low**

nk: not known as either unclear or not reported; n/a: not applicable

b) Risk of bias in three included observational studies. The criteria for risk of bias correspond to the key criteria to assess the methodological quality of nonrandomized studies summarized in Table 2 of the main article in the GRADE guidelines by Guyatt et al. [6]

Observational studies (all retrospective cohort studies)				
First author (year)	**Risk of bias**			
	Failure to develop and apply appropriate eligibility criteria	**Flawed measurement of both exposure and outcome**	**Failure to adequately control confounding**	**Incomplete follow-up**
Burt (2015) [7]	**low**	**low**	**low**	**low**
Dhital (2012) [8]	**low**	**low**	**high**	**low**
Gosmanov (2013) [9]	**high**	**low**	**high**	**low**

Supplementary Table 3: Quality of evidence for mean BGL and time in target glucose range (high, moderate, low or very low)

First author	**Limitations/ Risk of bias** (serious/not serious)	**Inconsistency** (Yes/No/not relevant)	**Indirectness** (Yes/No/not relevant)	**Imprecision** (Yes/No/not relevant)	**Publication bias** (likely/unlikely)	**Quality of evidence after up-/downgrading**
Randomized control trial						
Gerards (2016) [1]	**Not serious**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **Yes** Time in target glucose: **Yes**	Mean BGL: **unlikely** Time in target glucose: **unlikely**	**High downgrade to moderate** [a]
Grommesh (2016) [2]	**Serious**	Mean BGL: **Yes** Time in target glucose: **Yes**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **likely** Time in target glucose: **likely**	**High downgrade to very low** [b]
Lakhani (2016) [3]	**Serious**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **unlikely** Time in target glucose: **unlikely**	**High downgrade to moderate** [c]
Radhakutty (2016) [4]	**Serious**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **likely** Time in target glucose: **likely**	**High downgrade to low** [d]
Ruiz de Adana (2016) [5]	**Serious**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **No** Time in target glucose: **No**	Mean BGL: **unlikely** Time in target glucose: **unlikely**	**High downgrade to moderate** [e]
Observational studies						
Burt (2015) [7]	**Not serious**	Mean BGL: **No**	Mean BGL: **No**	Mean BGL: **No**	Mean BGL: **unlikely**	**Low**
Dhital (2012) [8]	**Not serious**	Mean BGL: **No**	Mean BGL: **No**	Mean BGL: **No**	Mean BGL: **unlikely**	**Low**
Gosmanov (2013) [9]	**Serious**	Mean BGL: **No**	Mean BGL: No	Mean BGL: **No**	Mean BGL: **unlikely**	**Low downgrade to very low** [f]

[a] downgrading because of serious imprecision with lack of CI; [b] downgrading because of serious limitations/risk of bias; lack of blinding and attending physicians were not obliged to follow the study protocol while titrating insulin doses, and inconsistency with small sample groups and publications bias with lack of significant results; [c] downgrading because of serious limitations/risk of bias; lack of blinding; [d] downgrading because of serious limitations/risk of bias; lack of blinding, and industry funding; [e] downgrading because of serious limitations/risk of bias, not randomised sequence generation, lack of allocation concealment; [f] downgrading because of serious limitation in eligibility criteria as "self-reported diagnosis of diabetes".

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