

Clinical trials of insulin sensitizer - biguanides for diabetes type 2 in all type of patients

TrialResults-center www.trialresultscenter.org

1 biguanide

Trial	Treatments	Patients	Trials design and methods
metformin vs Acarbose			
Maji vs acarbose n=48/48 follow-up: 156	500 versus Acarbose	-	
metformin vs Glibenclamide			
Yki-Yarvinen vs glibenclamide , 1999 n=19/22 follow-up: 52	2.000 versus Glibenclamide	-	
Kahn (ADOPT) vs glibenclamide n=1454/1441 follow-up: 208	2.000 versus Glibenclamide	-	
metformin vs Glimepiride			
Yamanouchi vs glimepiride , 2005 n=39/37 follow-up: 52	750 versus Glimepiride	-	
metformin vs Glipizide/			
Vahatalo vs glipizide/glimepiride n=26/15 follow-up: 52	2.500- versus Glipizide/	-	
metformin vs Insulin			
Yki-Yarvinen vsinsulin n=19/24 follow-up: 52	2.000 versus Insulin	-	
Klein , 1991 n=25/25 follow-up: 52	2.550 versus Insulin	-	
Barnett , 2008 n=211/235 follow-up: 128	NR versus Insulin	-	
metformin vs None			

continued...

Trial	Treatments	Patients	Trials design and methods
Vahatalo vs control , 2007 n=26/11 follow-up: 52	2.500 versus None	-	
Maji vs control , 2005 n=48/90 follow-up: 156	500 versus None	-	
UKPDS 34 vs control n=342/411 follow-up: 556	2.550 versus None	-	
UKPDS 34 bis n=268/269 follow-up: 343	2.550 versus None	-	
Zhang n=49/45 follow-up: 76	750 versus None	-	
Ramachandran n=262/269 follow-up: 156	500 versus None	-	
metformin vs Pioglitazone			
Yamanouchi vs pioglitazone n=39/38 follow-up: 52	750 versus Pioglitazone	-	
Shernthaner , 2004 n=597/597 follow-up: 52	2.000 versus Pioglitazone	-	
Derosa , 2009 n=67/69 follow-up: 64	3.000 versus Pioglitazone	-	
Charbonnel , 2005 n=320/319 follow-up: 104	2.550 versus Pioglitazone	-	
metformin vs placebo			
Hermann , 2001 n=16/19 follow-up: 52 weeks	metformin 65279;1.700 versus Placebo	obese and overweight type 2 diabetes patients treated with insulin for at least 1 year, and with poor glycaemic control (HbA1c >upper reference level + 2%)	Parallel groups double-blind
Douek , 2005 n=92/91 follow-up: 52	2.000 versus Placebo	-	
Gregorio , 1999 n=89/85 follow-up: 76	1.700 versus Placebo	-	

continued...

Trial	Treatments	Patients	Trials design and methods
Teupe , 1991 n=50/50 follow-up: 104	1.700 versus Placebo	Type 2 diabetic patients	Parallel groups open Canada
Kooy (HOME) , 2009 n=196/194 follow-up: 220	2.000 versus Placebo	Patients with type 2 diabetes	Parallel groups double blind
palomba n=15/15 follow-up: 52	1.700 versus Placebo	-	
Ibanez n=12/12 follow-up: 52	850 versus Placebo	-	
Harborne n=26/26 follow-up: 52	1.500 versus Placebo	-	
Li n=33/37 follow-up: 52	2.000 versus Placebo	-	
Martinez n=35/73 follow-up: 52	1.700 versus Placebo	-	
Gambineri n=40/40 follow-up: 52	1.700 versus Placebo	-	
Lund n=49/51 follow-up: 52	2.000 versus Placebo	-	
BIGPRO (Charles) n=164/160 follow-up: 52	1.700 versus Placebo	-	
Stakos vs placebo n=59/97 follow-up: 104	500 versus Placebo	-	
Shuster n=45/81 follow-up: 104	500 versus Placebo	-	
DPP (Knowler) n=1073/1082 follow-up: 156	1.700 versus Placebo	-	
Ibanez 62 n=19/19 follow-up: 208	425 versus Placebo	-	

metformin vs Rosiglitazone

continued...

Trial	Treatments	Patients	Trials design and methods
maji vs rosiglitazone n=48/48 follow-up: 156	500 versus Rosiglitazone	-	
ADOPT vs rosiglitazone n=1454/1456 follow-up: 208	2.000 versus Rosiglitazone	-	
RECORD n=1122/1103 follow-up: 260	2.550 versus Rosiglitazone	-	
Tomazic n=30/30 follow-up: 52	1.000 versus Rosiglitazone	-	
metformin vs Vildagliptin			
Schweizer , 2007 n=254/526 follow-up: 52	2.000 versus Vildagliptin	-	
metformin vs Glipizide			
Campbell , 1994 n=24/24 follow-up: 52	1.000 versus Glipizide	-	
Stakos vs glipizide n=59/25 follow-up: 104	500 versus Glipizide	-	
metformin vs SU/Insulin			
UKPDS (vs SU or INS) n=342/951 follow-up: 556	2.550 versus SU/Insulin	Type 2 diabetic patients	Parallel groups open UK

References

Maji vs acarbose, :

Yki-Yarvinen vs glibenclamide, 1999:

Yki-Jrvinen H, Ryysy L, Nikkil K, Tulokas T, Vanamo R, Heikkil M Comparison of bedtime insulin regimens in patients with type 2 diabetes mellitus. A randomized, controlled trial. *Ann Intern Med* 1999;130:389-96 [[10068412](#)]

Kahn (ADOPT) vs glibenclamide, :

Kahn SE, Haffner SM, Heise MA, Herman WH, Holman RR, Jones NP, Kravitz BG, Lachin JM, O'Neill MC, Zinman B, Viberti G Glycemic durability of rosiglitazone, metformin, or glyburide monotherapy. *N Engl J Med* 2006;355:2427-43 [[17145742](#)] [10.1056/NEJMoa066224](#)

Yamanouchi vs glimepiride, 2005:

Yamanouchi T, Sakai T, Igarashi K, Ichiyanaagi K, Watanabe H, Kawasaki T Comparison of metabolic effects of pioglitazone, metformin, and glimepiride over 1 year in Japanese patients with newly diagnosed Type 2 diabetes. *Diabet Med* 2005;22:980-5 [[16026361](#)] [10.1111/j.1464-5491.2005.01656.x](#)

Vahatalo vs glipizide/glimepiride, :

Yki-Yarvinen vsinsulin, :

Klein, 1991:

Klein W Sulfonylurea-metformin-combination versus sulfonylurea-insulin-combination in secondary failures of sulfonylurea monotherapy. Results of a prospective randomized study in 50 patients. *Diabetes Metab* 1991;17:235-40 [[1936483](#)]

Barnett, 2008:

Barnett AH, Lange P, Dreyer M, Serdarevic-Pehar M Long-term tolerability of inhaled human insulin (Exubera) in patients with poorly controlled type 2 diabetes. *Int J Clin Pract* 2007;61:1614-25 [[17877648](#)] [10.1111/j.1742-1241.2007.01522.x](#)

Vahatalo vs control, 2007:

Vhtalo M, Rnnemaa T, Viikari J Recognition of fasting or overall hyperglycaemia when starting insulin treatment in patients with type 2 diabetes in general practice. *Scand J Prim Health Care* 2007;25:147-53 [[17846932](#)] [10.1080/02813430701507719](#)

Maji vs control, 2005:

Maji D, Roy RU, Das S Prevention of type 2 diabetes in the prediabetic population. *J Indian Med Assoc* 2005;103:609-11 [[16570766](#)]

UKPDS 34 vs control, :

UKPDS 34 bis, :

Zhang, :

Zhang JL, Zheng X, Zou DJ, Qiu JL, Zhao XX, Qin YW Effect of metformin on weight gain during antihypertensive treatment with a beta-blocker in Chinese patients. *Am J Hypertens* 2009;22:884-90 [[19574961](#)] [10.1038/ajh.2009.93](#)

Ramachandran, :

Ramachandran A, Snehalatha C, Mary S, Mukesh B, Bhaskar AD, Vijay V The Indian Diabetes Prevention Programme shows that lifestyle modification and metformin prevent type 2 diabetes in Asian Indian subjects with impaired glucose tolerance (IDPP-1). *Diabetologia* 2006;49:289-97 [[16391903](#)] [10.1007/s00125-005-0097-z](#)

Yamanouchi vs pioglitazone, 0:

Schernthaner, 2004:

Schernthaner G, Matthews DR, Charbonnel B, Hanefeld M, Brunetti P Efficacy and safety of pioglitazone versus metformin in patients with type 2 diabetes mellitus: a double-blind, randomized trial. *J Clin Endocrinol Metab* 2004;89:6068-76 [[15579760](#)] [10.1210/jc.2003-030861](#)

Derosa, 2009:

Derosa G, Maffioli P, Salvadeo SA, Ferrari I, Gravina A, Mereu R, Palumbo I, D'Angelo A, Cicero AF Direct comparison among oral hypoglycemic agents and their association with insulin resistance evaluated by euglycemic hyperinsulinemic clamp: the 60's study. *Metabolism* 2009;58:1059-66 [[19394976](#)] [10.1016/j.metabol.2009.03.007](#)

Charbonnel, 2005:

Charbonnel B, Schernthaner G, Brunetti P, Matthews DR, Urquhart R, Tan MH, Hanefeld M Long-term efficacy and tolerability of add-on pioglitazone therapy to failing monotherapy compared with addition of gliclazide or metformin in patients with type 2 diabetes. *Diabetologia* 2005;48:1093-104 [[15889234](#)] [10.1007/s00125-005-1751-1](#)

Hermann, 2001:

Hermann LS, Kaln J, Katzman P, Lager I, Nilsson A, Norrhamn O, Sartor G, Ugander L Long-term glycaemic improvement after addition of metformin to insulin in insulin-treated obese type 2 diabetes patients. *Diabetes Obes Metab* 2001;3:428-34 [[11903415](#)]

Douek, 2005:

Douek IF, Allen SE, Ewings P, Gale EA, Bingley PJ Continuing metformin when starting insulin in patients with Type 2 diabetes: a double-blind randomized placebo-controlled trial. *Diabet Med* 2005;22:634-40 [[15842521](#)] [10.1111/j.1464-5491.2005.01475.x](#)

Gregorio, 1999:

Gregorio F, Ambrosi F, Manfrini S, Velussi M, Carle F, Testa R, Merante D, Filippini P Poorly controlled elderly Type 2 diabetic patients: the effects of increasing sulphonylurea dosages or adding metformin. *Diabet Med* 1999;16:1016-24 [[10656230](#)]

Teupe, 1991:

Teupe B, Bergis K Prospective randomized two-years clinical study comparing additional metformin treatment with reducing diet in type 2 diabetes. *Diabetes Metab* 1991;17:213-7 [[1936479](#)]

Kooy (HOME), 2009:

Kooy A, de Jager J, Lehert P, Bets D, Wulffel MG, Donker AJ, Stehouwer CD Long-term effects of metformin on metabolism and microvascular and macrovascular disease in patients with type 2 diabetes mellitus. Arch Intern Med 2009;169:616-25 [19307526]

palomba, :

Palomba S, Falbo A, Russo T, Manguso F, Tolino A, Zullo F, De Feo P, Orio F Jr Insulin sensitivity after metformin suspension in normal-weight women with polycystic ovary syndrome. J Clin Endocrinol Metab 2007;92:3128-35 [17519312] 10.1210/jc.2007-0441

Ibanez, :

Ibez L, Ferrer A, Ong K, Amin R, Dunger D, de Zegher F Insulin sensitization early after menarche prevents progression from precocious pubarche to polycystic ovary syndrome. J Pediatr 2004;144:23-9 [14722514] 10.1016/j.jpeds.2003.08.015

Harborne, :

Harborne L, Fleming R, Lyall H, Sattar N, Norman J Metformin or antiandrogen in the treatment of hirsutism in polycystic ovary syndrome. J Clin Endocrinol Metab 2003;88:4116-23 [12970273]

Li, :

Li CL, Pan CY, Lu JM, Zhu Y, Wang JH, Deng XX, Xia FC, Wang HZ, Wang HY Effect of metformin on patients with impaired glucose tolerance. Diabet Med 1999;16:477-81 [10391395]

Martinez, :

Martnez E, Domingo P, Ribera E, Milinkovic A, Arroyo JA, Conget I, Prez-Cuevas JB, Casamitjana R, de Lazzari E, Bianchi L, Montserrat E, Roca M, Burgos R, Arnaiz JA, Gatell JM Effects of metformin or gemfibrozil on the lipodystrophy of HIV-infected patients receiving protease inhibitors. Antivir Ther 2003;8:403-10 [14640387]

Gambineri, :

Gambineri A, Patton L, Vaccina A, Cacciari M, Morselli-Labate AM, Cavazza C, Pagotto U, Pasquali R Treatment with flutamide, metformin, and their combination added to a hypocaloric diet in overweight-obese women with polycystic ovary syndrome: a randomized, 12-month, placebo-controlled study. J Clin Endocrinol Metab 2006;91:3970-80 [16868063] 10.1210/jc.2005-2250

Lund, :

Lund SS, Tarnow L, Astrup AS, Hovind P, Jacobsen PK, Alibegovic AC, Parving I, Pietraszek L, Frandsen M, Rossing P, Parving HH, Vaag AA Effect of adjunct metformin treatment in patients with type-1 diabetes and persistent inadequate glycaemic control. A randomized study. PLoS One 2008;3:e3363 [18852875] 10.1371/journal.pone.0003363

BIGPRO (Charles), :

Charles MA, Morange P, Eschwge E, Andr P, Vague P, Juhan-Vague I Effect of weight change and metformin on fibrinolysis and the von Willebrand factor in obese nondiabetic subjects: the BIGPRO1 Study. Biguanides and the Prevention of the Risk of Obesity. Diabetes Care 1998;21:1967-72 [9802752]

Stakos vs placebo, :

Shuster, :

Schuster D, Gaillard T, Rhinesmith S, Habash D, Osei K Impact of metformin on glucose metabolism in nondiabetic, obese African Americans: a placebo-controlled, 24-month randomized study. Diabetes Care 2004;27:2768-9 [15505024]

DPP (Knowler), :

Ibanez 62, 0:

Ibez L, Lopez-Bermejo A, Daz M, Marcos MV, de Zegher F Metformin treatment for four years to reduce total and visceral fat in low birth weight girls with precocious pubarche. J Clin Endocrinol Metab 2008;93:1841-5 [18319306] 10.1210/jc.2008-0013

maji vs rosiglitazone, :

ADOPT vs rosiglitazone, :

RECORD, :

Tomazic, :

Tomazic J, Karner P, Vidmar L, Maticic M, Sharma PM, Janez A Effect of metformin and rosiglitazone on lipid metabolism in HIV infected patients receiving protease inhibitor containing HAART. Acta Dermatovenerol Alp Panonica Adriat 2005;14:99-105 [16200335]

Schweizer, 2007:

Schweizer A, Couturier A, Foley JE, Dejager S Comparison between vildagliptin and metformin to sustain reductions in HbA(1c) over 1 year in drug-naïve patients with Type 2 diabetes. *Diabet Med* 2007;24:955-61 [[17509069](#)] [10.1111/j.1464-5491.2007.02191.x](#)

Campbell, 1994:

Campbell IW, Menzies DG, Chalmers J, McBain AM, Brown IR One year comparative trial of metformin and glipizide in type 2 diabetes mellitus. *Diabete Metab* 1994;20:394-400 [[7843470](#)]

Stakos vs glipizide, :

Stakos DA, Schuster DP, Sparks EA, Wooley CF, Osei K, Boudoulas H Long term cardiovascular effects of oral antidiabetic agents in non-diabetic patients with insulin resistance: double blind, prospective, randomised study. *Heart* 2005;91:589-94 [[15831640](#)] [10.1136/hrt.2003.027722](#)

UKPDS (vs SU or INS), 0:

Effect of intensive blood-glucose control with metformin on complications in overweight patients with type 2 diabetes (UKPDS 34). UK Prospective Diabetes Study (UKPDS) Group. *Lancet* 1998;352:854-65 [[9742977](#)]

2 About TrialResults-center.org

TrialResults-center is an innovative knowledge database that collects the results of RCTs and provides dynamic interactive systematic reviews and meta-analysis in the field of all major heart and vessels diseases.

The TrialResults-center database provides a unique view of the treatment efficacy based on all data provided directly from clinical trial results, offering a valuable alternative to personal bibliographic search, published meta-analysis, etc. Furthermore, it would allow comparing easily the various concurrent therapeutic for the same clinical condition.

Rigorous meta-analysis method is used to populate TrialResults-center: widespread search of published and non published trials, study selection using pre-specified criteria, data extraction using standard form.

TrialResults-center is continually updated on a weekly basis. We continually search all new results (whatever their publication channel) and these news results are immediately added to the database with a maximum of 1 week.

TrialResults-center is non-profit and self-funded.