



MICRO LABS LIMITED

Diabetes Update

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Dear Doctor,

Greetings from Micro Labs Limited. We are happy to bring you **"DIABETES UPDATE"** which contains latest and interesting news in the field of Diabetes and Endocrinology.

- Persistent Poor Glycaemic Control in Individuals With Type 2 Diabetes in Developing Countries
- Prevalence of Insomnia and Association With Metabolic Parameters in T2D
- Association of small dense LDL_C with CV outcome in patients with CAD and diabetes

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,

Medical Team, Micro Labs Limited





Diabetes Update

Persistent Poor Glycaemic Control in Individuals With Type 2 Diabetes in Developing Countries

Diabetes is a significant health burden. In anticipation of increasing disease awareness, better care standards and technological advancements, the International Diabetes Management Practices Study (IDMPS) was designed to document and track patient profiles and patterns of care across time in developing countries, where data are limited. The IDMPS is the largest international observational study with the participation of over 6000 physicians from 49 countries across Africa, the Middle East, South Asia, Latin America, Asia and Eurasia. Data were collected using structured case report forms in a series of yearly 'waves', with each wave recruiting a different cohort of participants. The first wave of

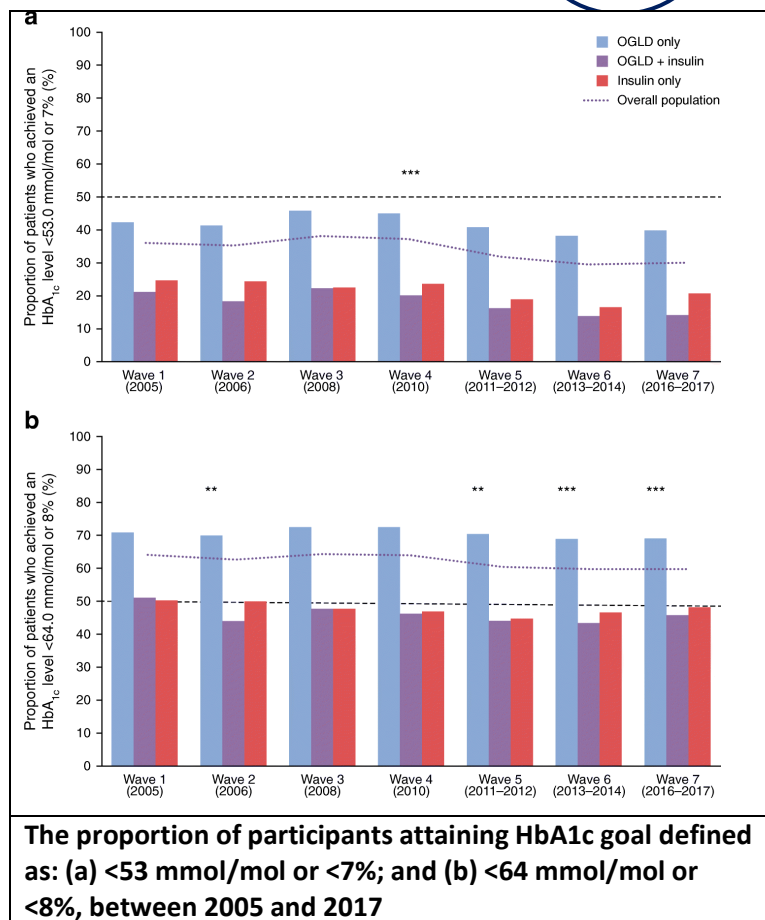
data collection began in 2005 and the most recent wave (wave 7) was completed in 2017.

66,088 individuals with type 2 diabetes from seven waves of data collection; of these, 42,171 (63.8%) received OGLD only, 14,529 (22.0%) received OGLD + insulin and 7566 (11.4%) received insulin only. Patients treated with meal plan/physical activity alone ($n = 1685$, 2.5%) and those who did not use OGLD, insulin or diet for their diabetes ($n = 137$, 0.2%) were excluded from this analysis. A total of 49 countries were included in the seven waves of data collection, grouped into regions with the composition of each region varying by wave depending on logistic availability.

In developing countries, glycaemic control in individuals with type 2 diabetes remained suboptimal over a 12 year period.

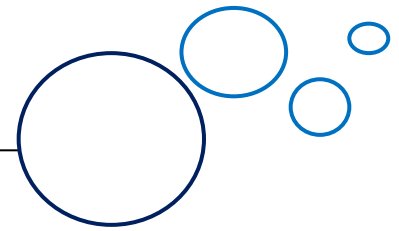
A total of 66,088 individuals with type 2 diabetes were recruited by 6099 physicians from 49 countries. The proportion of participants with HbA1c <53 mmol/mol (<7%) decreased

from 36% in wave 1 (2005) to 30.1% in wave 7 (2017) ($p < 0.0001$). Compared with wave 1, the adjusted ORs of attaining HbA1c ≤ 64 mmol/mol ($\leq 8\%$) decreased significantly in waves 2, 5, 6 and 7 ($p < 0.05$). Over 80% of participants received oral glucose-lowering drugs, with declining use of sulfonylureas. Insulin use increased from 32.8% (wave 1) to



41.2% (wave 7) ($p < 0.0001$). The corresponding time to insulin initiation (mean $\pm$ SD) changed from 8.4 ± 6.9 in wave 1 to 8.3 ± 6.6 years in

wave 7, while daily insulin dosage ranged from 0.39 ± 0.21 U/kg (wave 1) to 0.33 ± 0.19 U/kg (wave 7) for basal regimen and 0.70 ± 0.34 U/kg (wave 1)



to 0.77 ± 0.33 (wave 7) U/kg for basal-bolus regimen. An increasing proportion of participants had ≥ 2 HbA1c measurements within 12 months of enrolment (from 61.8% to 92.9%), and the proportion of participants receiving diabetes education (mainly delivered by physicians) also increased from

59.0% to 78.3%. In conclusion, in this 12 year study, poor and worsening glycaemic control was observed in individuals with type 2 diabetes.

Source: Aschner P et al. Diabetologia. 2020;63(4):711-721.
doi:10.1007/s00125-019-05078-3

Prevalence of Insomnia and Association With Metabolic Parameters in T2D

Insomnia is defined as chronic difficulty of falling asleep, staying asleep or waking up early, despite opportunity to sleep, at least 3 times a week during 1 month, resulting

and insomnia symptoms and its association with metabolic parameters and glycemic control in people with T2D in a systematic review and meta-analysis

The prevalence of insomnia in the T2D population may be associated with deleterious glycemic control.

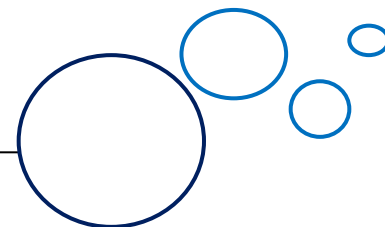
in daytime impairment. The aim of this study is to determine the prevalence of insomnia

	No. Prevalence Estimates	Prevalence (%)	95% CI	I ² (P Value)
Overall	84	39	34-44	100% ($P < 0.00001$)
Sensitivity analyses				
Age <60 y	56	37	31-44	100% ($P < 0.00001$)
Age ≥ 60 y	28	44	36-55	
Year of analysis <2010	31	35	31-40	100% ($P < 0.00001$)
Year of analysis ≥ 2010	53	42	32-54	
PSQI	48	46	35-62	100% ($P < 0.00001$)
Other than PSQI	36	31	27-36	
Strong quality	34	39	33-47	100% ($P < 0.00001$)
Moderate quality	46	39	32-48	100% ($P < 0.00001$)
Weak quality	4	44	29-68	99% ($P < 0.00001$)
With comorbidities	9	60	46-79	99% ($P < 0.00001$)
No comorbidities	74	37	33-43	100% ($P < 0.00001$)
N < 100	22	40	25-64	100% ($P < 0.00001$)
N = 100-199	21	55	46-67	99% ($P < 0.00001$)
N = 200-299	14	46	38-55	99% ($P < 0.00001$)
N = 300-999	18	32	22-47	100% ($P < 0.00001$)
N > 1000	9	24	17-34	100% ($P < 0.00001$)
Studies with no comorbidities, with PSQI, of strong quality and with sample size >200	17	39	30-51	100% ($P < 0.00001$)

Abbreviation: PSQI = Pittsburgh Sleep Quality Index.

Prevalence, 95% Confidence Intervals (CI) and I² Statistic Overall and for Several Sensitivity Analyses

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A total of 11 329 titles/abstracts were screened and 224 were read full text in duplicate, of which 78 studies were included. The pooled prevalence of insomnia (symptoms) in people with T2D was 39% (95% confidence interval, 34–44) with I2 statistic of 100% ($P < 0.00001$), with a very low GRADE of evidence. Sensitivity analyses identified no clear sources of heterogeneity. Meta-analyses showed that in people with T2D, insomnia (symptoms) were

associated with higher hemoglobin A1c levels (mean difference, 0.23% [0.1–0.4]) and higher fasting glucose levels (mean difference, 0.40 mmol/L [0.2–0.7]), with a low GRADE of evidence. The relative low methodological quality and high heterogeneity of the studies included in this meta-analysis complicate the interpretation of our results.

Source: Koopman ADM, Glycemic Control: Meta-Analysis. *J Clin Endocrinol Metab.* 2020;105(3):dgz065.

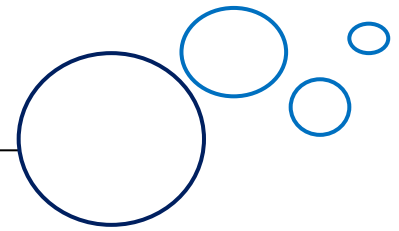
Association of small dense LDL_C with CV outcome in patients with CAD and diabetes

Low-density lipoprotein cholesterol (LDL-C) is one of the major risk factors of coronary artery disease (CAD). Achieving lower levels of LDL-C for patients with very high risk has been recommended by various guidelines. Elevation in small dense low-density lipoprotein (sdLDL) is common in patients with diabetes mellitus (DM),

which has already been reported to be associated with incidence of coronary artery disease (CAD). The aim of the present study was to investigate the prognostic value of plasma sdLDL level in patients with stable CAD and DM.

A total of 4148 consecutive patients with stable CAD were prospectively enrolled into the

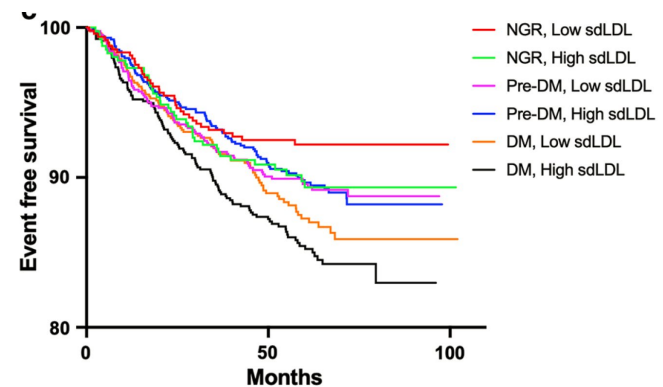
Elevated levels of plasma sdLDL were associated with increased risk of MACEs among DM patients.



study and followed up for major cardiovascular events (MACEs) up to 8.5 years. Plasma sdLDL level was measured in each patient by a direct method using automated chemistry analyzer. The patients were subsequently divided into four groups by the quartiles of sdLDL and the association of sdLDL level with MACEs in different status of glucose metabolism [DM, Pre-DM, normal glycaemia regulation (NGR)] was evaluated.

A total of 464 MACEs were documented. Both Kaplan-Meier analysis and Cox regression analysis indicated that the patients in quartile 4 but not quartile 2 or 3 of sdLDL level had significantly higher rate of MACEs than that in lowest

quartile. When the prognostic value of high sdLDL was assessed in different glucose metabolism status, the results showed that the high sdLDL plus DM was associated with



worse outcome after adjustment of confounding risk factors (hazard ratio: 1.83, 95% confident interval: 1.24-2.70, $p < 0.05$). However, no significant association was observed for high sdLDL plus Pre-DM or NGR.

Source: Jin JL et al. Cardiovasc Diabetol. 2020;19(1):45



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