



Issue 14, January'19

State of the H EART

A monthly cardiology news



STATE OF THE HEART



Dear Reader,

We are grateful to present you the 14th issue of “State of the Heart”, which explores the clinical evidence supporting the new understandings and happenings in the field of cardiology.

In India, the epidemiological transition from predominantly infectious disease conditions to non-communicable diseases has occurred over a rather succinct period of time. Despite wide heterogeneity in the prevalence of cardiovascular risk factors across different regions, CVD has emerged as the leading cause of death in all parts of India, including poorer states and rural areas. In this research driven time, management of these disorders is also constantly evolving towards the betterment whether it's pharmacological or non-pharmacological.

Being a healthcare custodian of the society, clinicians are constantly thriving to be abreast with the novel understandings of disease and its management. In this context, this is our initiative to provide you a compiled and to the point information.

Present booklet comprises of recent and latest deeds in the field of cardiovascular diseases like dyslipidemia, coronary artery disease, heart failure and its management. We hope that it will facilitate increased cooperation and innovation, and enthuse commitment to prevent these life-threatening and disabling disorders and providing the best possible care for people who suffer from these conditions.

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1. LIPITENSION: A RISING EPIDEMIC IN NEWLY DIAGNOSED T2DM

LIPITENSION

A Rising Epidemic in Newly Diagnosed T2DM

Background

Hypertension and abnormal cholesterol values are the most common comorbidities associated with type 2 diabetes. The coexistence of hypertension and dyslipidemia in a person has been named as “**Lipitension**”.

Methods

Clinic Based Survey (4 months)

Inclusion Criteria

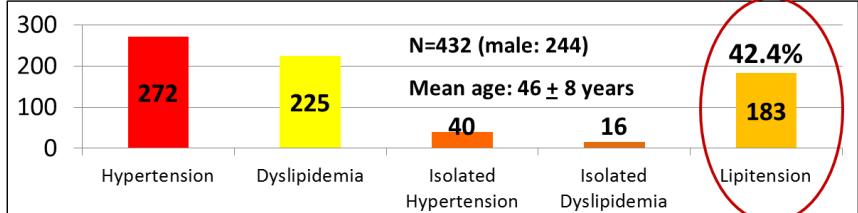
Subjects who were diagnosed with T2DM within the previous 2 months

Exclusion Criteria

- Subjects who were on antihypertensive medicines
- Subjects receiving fibrates, statin, steroids or thyroid medicines
- Known hypertensive or dyslipidemic subjects

Blood Pressure and Lipid panel estimation

Results



Lipitension is a rising epidemic in newly diagnosed T2D adults. Lipitension in the background of diabetes requires careful attention to reduce CV events.

Int J Diabetes Dev Ctries (November 2018) 38 (Suppl 2):S134 (PP02)



Background and Aims:

Cardiovascular events account for premature mortality and morbidities in people with diabetes. Hypertension and abnormal cholesterol values are major risk factors for diabetic macrovascular complications. These two are the most common comorbidities associated with type 2 diabetes. The coexistence of hypertension and dyslipidemia in a person has been named as “**Lipitension**”. The aim of this cross sectional study was to find out the prevalence of lipitension in a newly diagnosed type 2 diabetes cohort.

Materials and methods:

Investigators conducted a clinic based survey, in the month of May through August 2018, of subjects who were diagnosed with type 2 diabetes within the previous 2 months. Subjects who were on ACE inhibitors, ARBs, CCBs, alpha or beta blockers or any other antihypertensive medicines, statins, fibrates, thyroid supplements, oral or inhaled steroids were excluded from consideration. Similarly, known hypertensives or dyslipidemic subjects were excluded. Fasting blood was collected for lipid panel estimation. Blood pressure was recorded thrice in sitting posture and mean was taken.

Results:

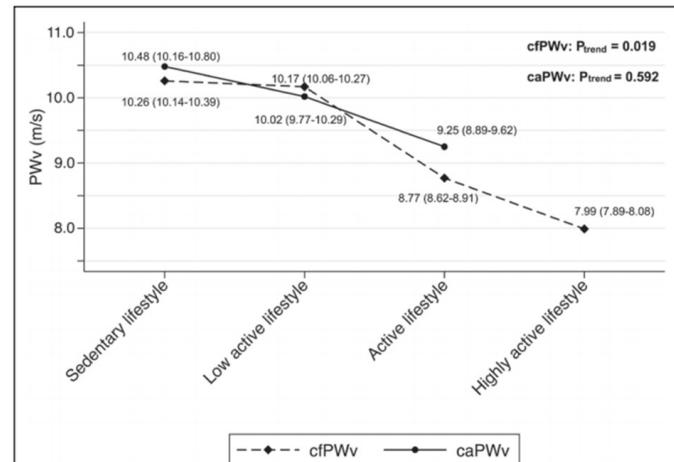
Finally 432 subjects (244 males, 188 females) met the inclusion criteria and were taken up for analysis. The mean age of the sample was calculated to be 46 ± 8 years. While 272 (63.0%) participants had hypertension, dyslipidemia was encountered among 225 (52.1%) subjects. Out of 432 newly detected diabetics, 183 individuals (42.4%) were diagnosed with lipitension. Isolated hypertension (without dyslipidemia) and isolated dyslipidemia (normotensive) were seen in 40 (9.3%) and 16 (3.7%) diabetics respectively. Lipitension is a rising epidemic in newly diagnosed type 2 diabetic adults.

“LIPITENSION IN THE BACKGROUND OF DIABETES IS DIFFICULT TO MANAGE AND REQUIRES PATIENT EDUCATION ALONG WITH MULTIPLE PHARMACOLOGICAL AGENTS.”

2. STEPS PER DAY AND ARTERIAL STIFFNESS

Steps Per Day And Arterial Stiffness

- Arterial stiffness is an independent predictor of cardiovascular morbidity and mortality.
- The aim of this review was to determine the relationship between steps per day and arterial stiffness, as measured by its reference standard, pulse wave velocity (PWv).



An increment of as little as 1 000 steps/day could potentially reduce PWv ≈ 0.18 m/s

Hypertension. 2019;73. DOI: 10.1161/HYPERTENSIONAHA.118.11987.

Background and Aim:

Arterial stiffness has emerged as an independent predictor of cardiovascular morbidity and mortality. Furthermore, objectively monitored steps per day is widely perceived to be beneficial for controlling health risk factors, and for preventing morbidity and mortality. The aim of this review was to determine the relationship between steps per day and arterial stiffness, as measured by its reference standard, pulse wave velocity (PWv).

Methods:

Systematic search for cross-sectional data from studies addressing the association between steps per day and PWv was done. The DerSimonian and Laird method was used to compute pooled estimates of correlation and their respective 95% CI. Additionally, a regression model to estimate the pooled mean PWv by categories of physical activity behavior: sedentary <5000; low active 5000 to 7499; active 7500 to 9999; and highly active 10 000+ was used.

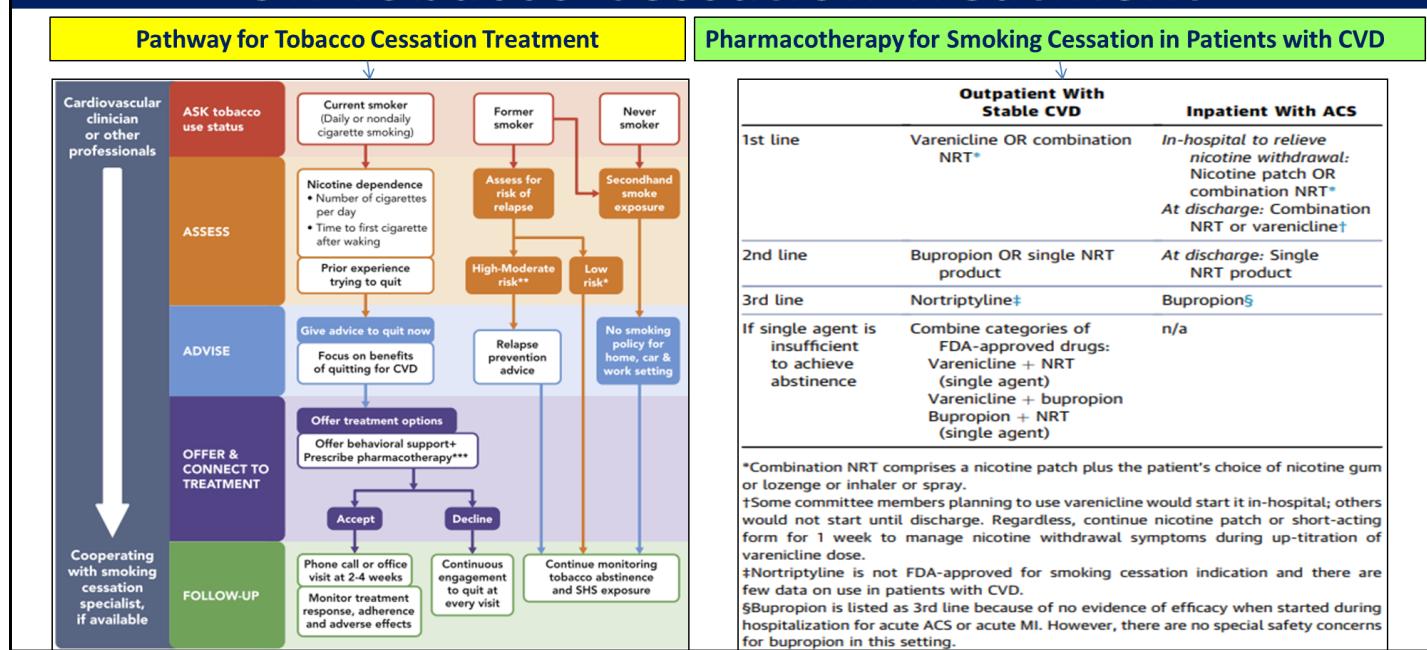
Results:

Twenty published studies were included in the systematic review, but only 10 studies in adults and older adults could be incorporated in the meta-analysis. Steps per day was inversely correlated with arterial stiffness measured by PWv in adults and older adults ($r=-0.18$; 95% CI: -0.27 to -0.10 ; $P<0.001$), with substantial heterogeneity ($I^2=77.9\%$; $P<0.001$). The regression model showed that the pooled PWv was lower with a corresponding higher level of steps per day, influenced primarily by low PWv values for the highly active lifestyle category ($P_{trend}=0.005$).

"THERE IS A CLINICALLY MEANINGFUL ASSOCIATION BETWEEN OBJECTIVELY MONITORED STEPS PER DAY AND PWV, AN ACCEPTED INDICATOR OF ARTERIAL STIFFNESS AND AN EARLY SUBCLINICAL RISK FACTOR FOR CARDIOVASCULAR DISEASE"

3. 2018 ACC EXPERT CONSENSUS DECISION PATHWAY ON TOBACCO CESSATION TREATMENT

2018 ACC Expert Consensus Decision Pathway On Tobacco Cessation Treatment



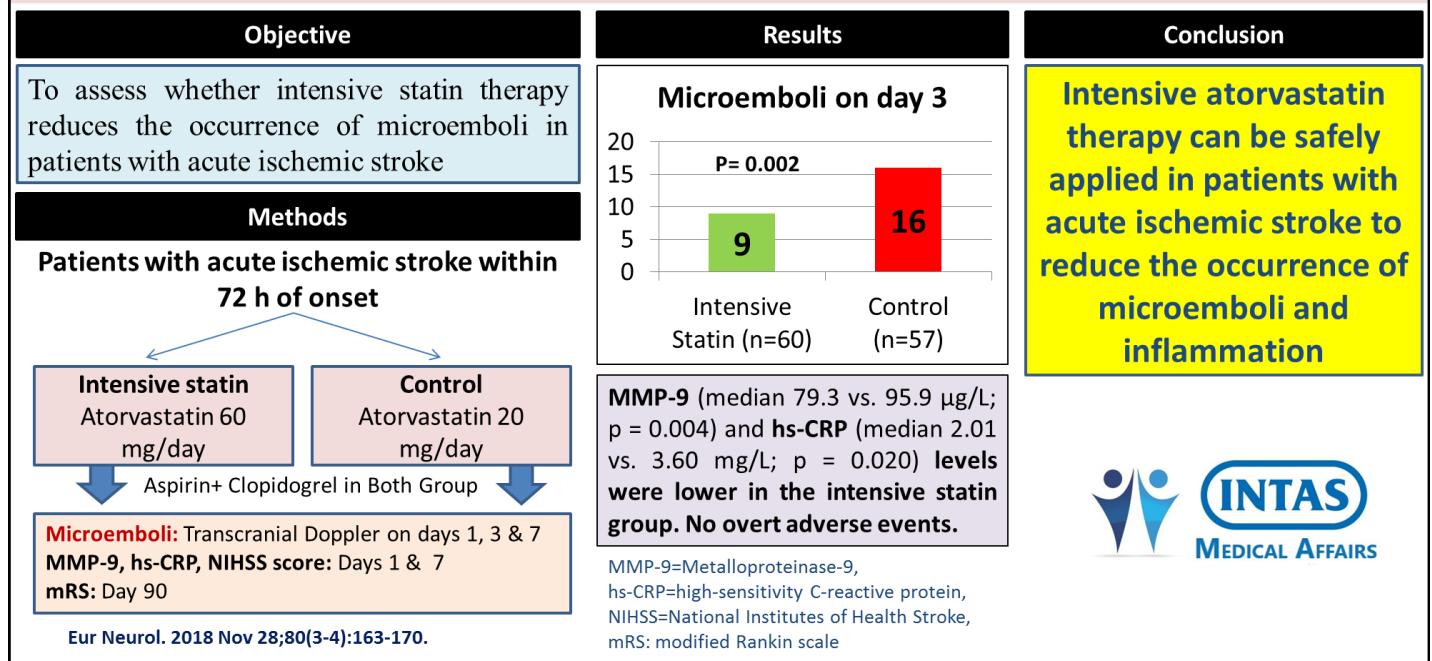
Tobacco use, especially cigarette smoking, is a major risk factor for cardiovascular morbidity and mortality and is the leading preventable cause of death worldwide. Comprehensive tobacco cessation treatment is a critical component of the clinical care for individuals with or at risk for cardiovascular diseases. The consistent delivery of tobacco cessation treatment remains a significant challenge for healthcare providers.

This ECDP provides a structured approach to evaluating and treating tobacco dependence and offers practical guidance for overcoming challenges commonly encountered in the clinical setting. The Decision Pathway recommends that clinicians and practices establish a team-based system of care that recognizes cigarette smoking as a chronic relapsing substance use disorder caused by addiction to nicotine. The care team should ensure that patients are asked about cigarette smoking and other tobacco product use at all clinical encounters.

Patients who use any tobacco product should receive clear advice to stop tobacco use and be offered a brief intervention that includes prescriptions for proven pharmacological smoking cessation aids and proactive connection to evidence-based behavioral support based in the healthcare system and/or the community. Former smokers, especially recent quitters (i.e., those who have stopped smoking in the past year), should be monitored closely for possible relapse back to smoking. Nonsmokers (i.e., both former smokers and never smokers) should routinely be asked about exposure to secondhand smoke and advised to avoid it. This ECDP also addresses steps to follow when implementing evidence-based therapies and treating special patient groups while also acknowledging situations for which few data exist. It provides tables and figures to illustrate the steps and tools needed to successfully provide comprehensive tobacco cessation treatment.

4. INTENSIVE ATORVASTATIN THERAPY IN PATIENTS WITH ACUTE ISCHEMIC STROKE REDUCES THE OCCURRENCE OF MICROEMBOLI AND INFLAMMATION

Intensive Atorvastatin Therapy In Patients With Acute Ischemic Stroke Reduces The Occurrence Of Microemboli And Inflammation



Background:

To assess whether intensive statin therapy reduces the occurrence of microemboli in patients with acute ischemic stroke.

Methods:

Patients with acute ischemic stroke within 72 h of onset were randomized to the intensive statin (atorvastatin 60 mg/day, adjusted to 20 mg/day after 7 days) and control (atorvastatin 20 mg/day) groups. Combined aspirin and clopidogrel were used for antiplatelet therapy. Microemboli were monitored by transcranial Doppler on days 1 (pre-treatment), 3, and 7. Metalloproteinase-9 (MMP-9), high-sensitivity C-reactive protein (hs-CRP), and National Institutes of Health Stroke Scale (NIHSS) score were assessed on days 1 and 7. The modified Rankin scale (mRS) was used on day 90. The primary outcome was the proportion of patients with microemboli on day 3.

Results:

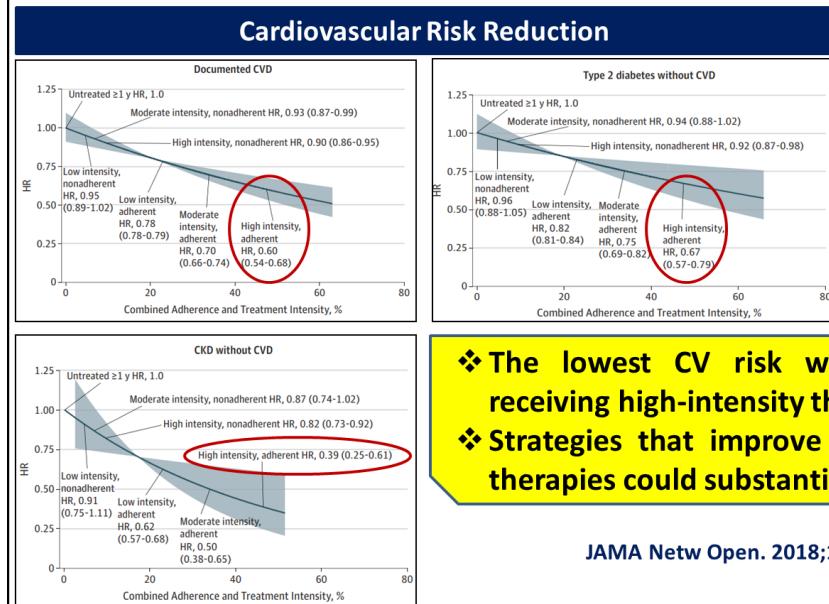
There were 35 (58.3%) and 30 (52.6%) patients with microemboli in the intensive statin (n = 60) and control (n = 57) groups, respectively, on day 1 (p = 0.342).

On day 3, there were significantly less microemboli in the intensive statin group (n = 9; 15.0%) compared with controls (n = 16; 28.1%; p = 0.002). No difference was observed in MMP-9 and hs-CRP levels on day 1, but on day 7, MMP-9 (median 79.3 vs. 95.9 µg/L; p = 0.004) and hs-CRP (median 2.01 vs. 3.60 mg/L; p = 0.020) levels were lower in the intensive statin group compared with controls. There were no differences in NIHSS scores on days 1 and 7. There was no difference in mRS on day 90.

“INTENSIVE
 ATORVASTATIN
 THERAPY IN
 PATIENTS WITH
 ACUTE ISCHEMIC
 STROKE REDUCES
 THE OCCURRENCE
 OF MICROEMBOLI
 AND
 INFLAMMATION,
 WITH NO OVERT
 ADVERSE EVENTS ”

5. IMPROVING ADHERENCE AND THE USE OF HIGH-INTENSITY THERAPIES COULD ACHIEVE GREATER REDUCTIONS IN LDL-C AND REDUCE CVD RISK

Improving Adherence And The Use Of High-intensity Therapies Could Achieve Greater Reductions In LDL-C And Reduce CVD Risk



- In the **documented CVD cohort** 10% increase in the combined measure was associated with a 10% lower risk of ASCVD.
- Adherent patients receiving a **high-intensity regimen** had the lowest risk (HR, 0.60; 95% CI, 0.54-0.68).
- Findings in the other 2 cohorts (T2DM & CKD) were similar.

- ❖ The lowest CV risk was observed among adherent patients receiving high-intensity therapy.
- ❖ Strategies that improve adherence and greater use of intensive therapies could substantially improve cardiovascular risk.

JAMA Netw Open. 2018;1(8):e185554.



Objective :

To evaluate the association of adherence and treatment intensity with cardiovascular outcomes in patients with documented cardiovascular disease (CVD), type 2 diabetes without CVD or chronic kidney disease (CKD), and CKD without CVD.

Methods:

Retrospective cohort study using the Clinical Practice Research Datalink from January 2010 through February 2016. Participants were newly treated patients who received their first statin and/or ezetimibe prescription between January 1, 2010, and December 31, 2013, plus an additional prescription for statins and/or ezetimibe during the following year. Adherence was assessed annually using the proportion of days covered (adherent defined as a proportion of days covered of 80% or higher). Adherence and treatment intensity were multiplied to create a combined measure, reflecting treatment intensity after accounting for adherence. Composite end point of cardiovascular death or hospitalization for myocardial infarction, unstable angina, ischemic stroke, heart failure, or revascularization. Hazard ratios (HRs) were estimated against patients not treated for 1 year or longer.

Results 29 797 newly treated patients. In the documented CVD cohort, patients receiving high-intensity therapy were more likely to be adherent over time (84.1% in year 1 and 72.3% in year 6) than patients receiving low-intensity therapy (57.4% in year 1 and 48.4% in year 6). Using a combined measure of adherence and treatment intensity, each 10% increase in the combined measure was associated with a 10% lower risk (HR, 0.90; 95% CI, 0.86-0.94). Adherent patients receiving a high-intensity regimen had the lowest risk (HR, 0.60; 95% CI, 0.54-0.68) vs patients untreated for 1 year or longer.

"STRATEGIES THAT IMPROVE ADHERENCE AND GREATER USE OF INTENSIVE THERAPIES COULD SUBSTANTIALLY IMPROVE CARDIOVASCULAR RISK."

6. SHORT-TERM CV OUTCOMES OF NEWER ANTI DIABETIC CLASSES MAY BE SIMILAR AMONG PATIENTS STARTING SECOND-LINE TREATMENT

Short-term CV Outcomes Of Newer Anti Diabetic Classes May Be Similar Among Patients Starting Second-line Treatment

New real-world research

Cohort study of 132 737 adults with T2DM

Outcome: Composite cardiovascular events



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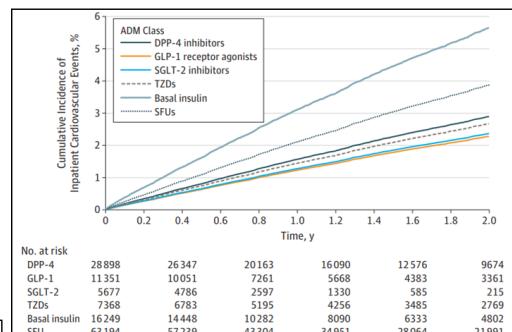
CV outcome: GLP 1 RA

DPP4i

SGLT2i

Sulfonylureas and basal insulin were associated with comparatively higher cardiovascular risk when compared with DPP4i

Clinicians may consider prescribing newer antidiabetic medicine classes (DPP4i, GLP1 RA or SGLT2i) more routinely after metformin rather than sulfonylureas or basal insulin.



Among adult patients with type 2 diabetes initiating second-line ADM therapy, the short-term cardiovascular outcomes of GLP-1 receptor agonists, SGLT-2 inhibitors, and DPP-4 inhibitors were similar.

GLP 1 RA: Glucagon-like peptide 1 receptor agonists

DPP4i: Dipeptidyl peptidase 4 inhibitors

SGLT2i: sodium-glucose co-transporter 2 inhibitors

Ref: JAMA Network Open. 2018;1(8):e186125

Objective

To examine the association of second-line ADM classes with major adverse cardiovascular events.

Methods:

Retrospective cohort study among insured adults with type 2 diabetes who started therapy with a second-line ADM after taking either metformin alone or no prior ADM. This study used 2011-2015 US nationwide administrative claims data. Data analysis was performed from January 2017 to October 2018. The DPP-4 inhibitors served as the comparison group in all analyses. The primary outcome was time to first cardiovascular event after starting the second-line ADM.

Results

Among 132 737 insured adult patients with type 2 diabetes, there were 3480 incident cardiovascular events during 169 384 person-years of follow-up. Patients were censored after the first cardiovascular event, discontinuation of insurance coverage, transition from International Classification of Diseases, Ninth Revision (ICD-9) to end of ICD-9 coding, or 2 years of follow-up. After adjusting for patient, prescriber, and health plan characteristics, the risk of composite CV events after starting GLP-1 receptor agonists was lower than DPP-4 inhibitors (hazard ratio [HR], 0.78; 95% CI, 0.63-0.96), but this finding was not significant in all sensitivity analyses. CV event rates after starting treatment with SGLT-2 inhibitors (HR, 0.81; 95% CI, 0.57-1.53) and TZDs (HR, 0.92; 95% CI, 0.76-1.11) were not statistically different from DPP-4 inhibitors. The comparative risk of cardiovascular events was higher after starting treatment with sulfonylureas (HR, 1.36; 95% CI, 1.23-1.49) or basal insulin (HR, 2.03; 95% CI, 1.81-2.27) than DPP-4 inhibitors.

“CLINICIANS MAY CONSIDER PRESCRIBING NEWER ADM CLASSES MORE ROUTINELY AFTER METFORMIN RATHER THAN SULFONYLUREAS OR BASAL INSULIN.”

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