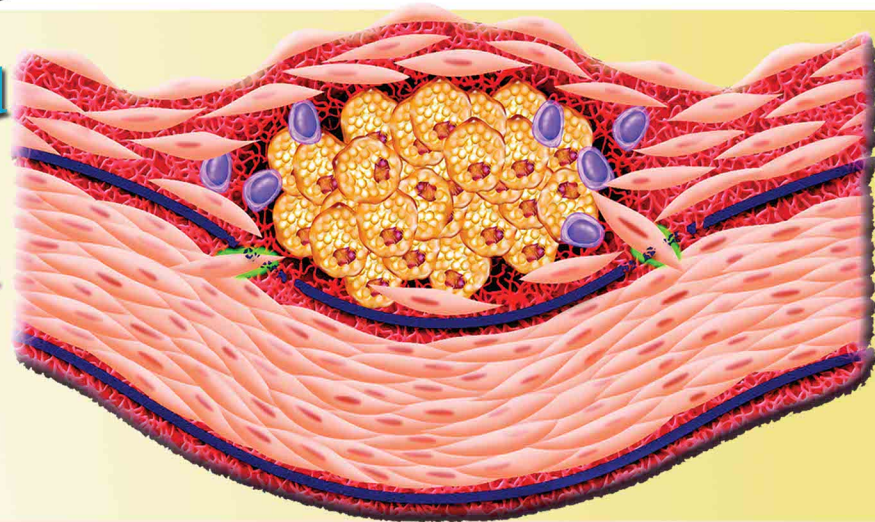
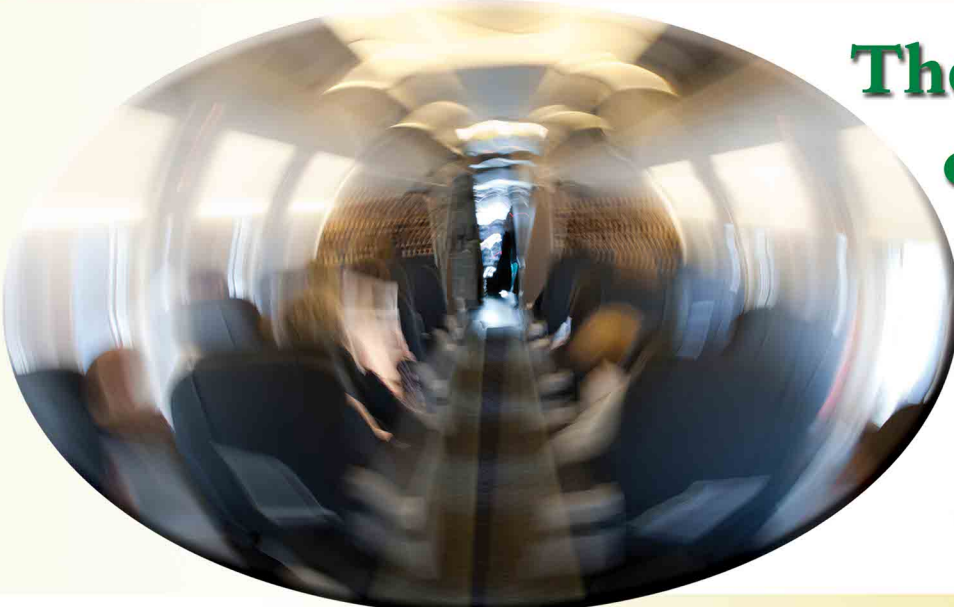


MEDICAL UPDATES

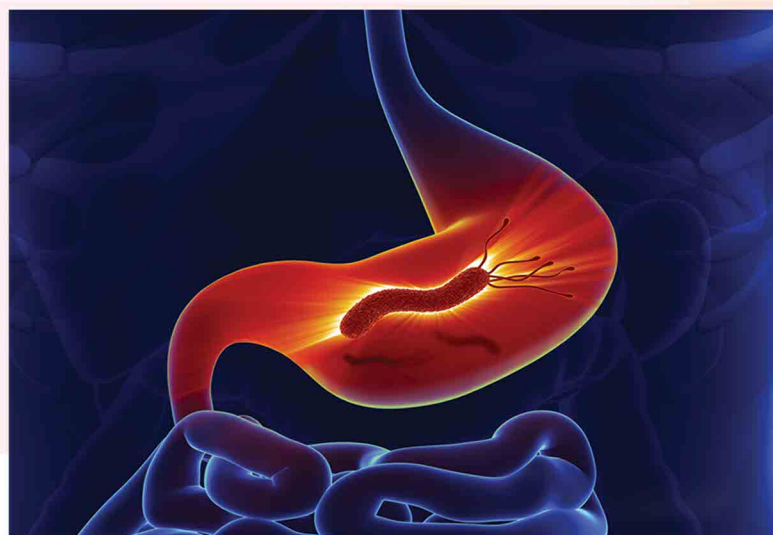


Issue No.:21 April 2015

The prevalence and characteristics of metabolic syndrome in patients with vertigo.



Atorvastatin reduced blood pressure, nitroxidative stress in hypertensive rats with diabetes.



Strategies for eliminating death from gastric cancer in Japan



The prevalence and characteristics of metabolic syndrome in patients with vertigo.

Yamanaka T1, Fukuda T, Shirota S, Sawai Y, Murai T, Fujita NHosoi H

Department of Otolaryngology–Head and Neck Surgery, Nara Medical University School of Medicine, Kashihara, Nara, Japan.

OBJECTIVES/HYPOTHESIS:

Metabolic syndrome (MetS) is a condition that increases the risk of coronary artery disease and cerebral infarction. We determined the prevalence of MetS in vertigo patients and clinically investigated the association between MetS and vertigo.

STUDY DESIGN:

Case-control study.

RESULTS:

MetS was detected in 53 (15.9%) of 333 vertigo patients, including 24 males (22.4%) and 29 females (12.8%); i.e., the frequency of MetS was significantly higher among the male patients than the female patients. The overall prevalence of MetS (15.9%) among vertigo patients did not differ from that observed among general adults in previous Japanese surveillance studies; however, MetS was significantly more common among the vertigo patients in males than general adult males. The prevalence of MetS was also examined in five types of vertigo, Concomitant MetS was noted in many males with vertebrobasilar insufficiency (VBI) and isolated vertigo of unknown etiology.

METHODS:

The subjects were 333 patients, including 107 males and 226 females, who presented with vertigo as a primary symptom. MetS was diagnosed according to the International Diabetes Federation definition, which is based on waist circumference, blood serum levels, and blood pressure.

CONCLUSION:

It was suggested that MetS is involved in the development of vertigo in males. MetS might be a risk factor for vascular vertigo such as VBI in males. The high frequency of MetS among males with vertigo of unknown etiology suggested that the pathogenesis of metabolic syndrome is involved in this type of isolated vertigo.

Strategies for eliminating death from gastric cancer in Japan

By Masahiro ASAKA and Katsuhiko MABE, et al.

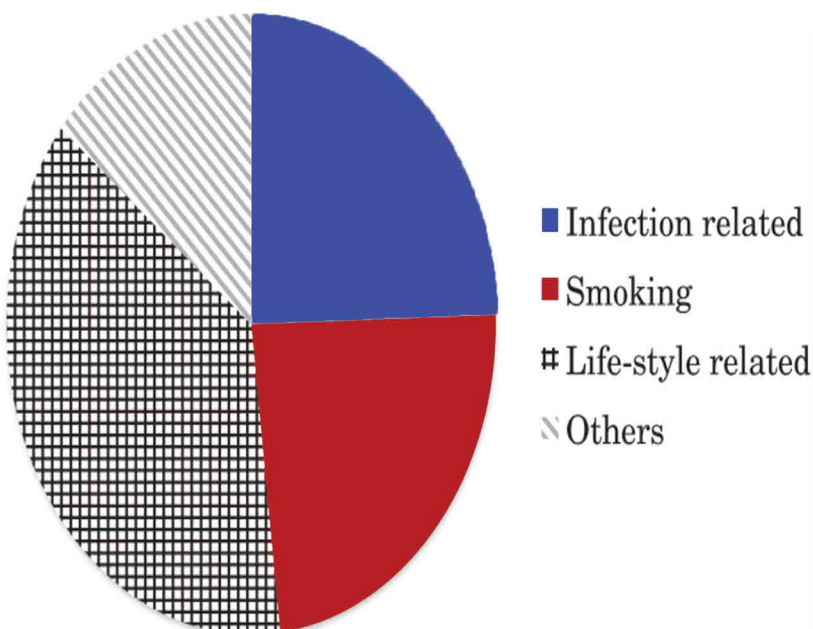
Communicated by Takashi SUGIMURA, M.J.A.

Abstract

In Japan, efforts have been directed toward improving the detection of early gastric cancer by double contrast radiography and endoscopy, since early cancer has a good prognosis, resulting in Japan having the world's best diagnostic system for early gastric cancer. The 5-year survival rate of gastric cancer patients in Japan is much higher than in Western countries by the development of endoscopic treatment for early gastric cancer. In February 2013, Japanese national health insurance cover for *H. pylori* eradication therapy was expanded to patients with *H. pylori*-associated gastritis, a type of chronic gastritis. *H. pylori*-associated gastritis causes gastric and duodenal ulcers and gastric polyps, therefore, providing treatment for this gastritis is likely to substantially decrease the prevalence of both gastric and duodenal ulcer and gastric cancer.

Patients with gastritis are tested for *H. pylori* infection and those who are positive receive eradication therapy followed by periodic endoscopic surveillance.

If such an approach is pursued further in Japan, gastric cancer deaths will show a dramatic decline after 10–20 years.



Conclusion

A gastric cancer elimination project that combines *H. pylori* eradication therapy and endoscopic examination is both appropriate and feasible for Japan, where excellent methods of diagnosis and endoscopic treatment for early gastric cancer are already available.

In 2013, *H. pylori* eradication therapy for chronic gastritis was covered by the Japanese national health insurance scheme for the first time in the world, making a dramatic decrease of gastric cancer-related deaths more feasible.

Atorvastatin reduced blood pressure, nitrooxidative stress in hypertensive rats with diabetes .

Mason RP1, Corbalan JJ, Jacob RF, Dawoud HMalinski

Harvard Medical School, Department of Medicine, Cardiovascular Division, Boston, MA, USA.

Abstract

Clinical trials have shown that atorvastatin benefits patients with diabetes even with normal baseline LDL levels.

We hypothesized that atorvastatin improves endothelial cell (EC) function and reduces inflammation in hypertensive rats with diabetes. Non-diabetic and streptozotocin-induced type 2 diabetic male spontaneously hypertensive rats (SHR) were treated with atorvastatin at 20 mg/kg/day.

Glucose, cholesterol, blood pressure (BP), and the cytokine RANTES were also measured.

Diabetic SHR rats had elevated glucose (355 ± 38 mg/dL), mean BP (172 ± 15 mmHg), and plasma RANTES (38.4 ± 2.7 ng/mL), low endothelial NO bioavailability and high ONOO(-).

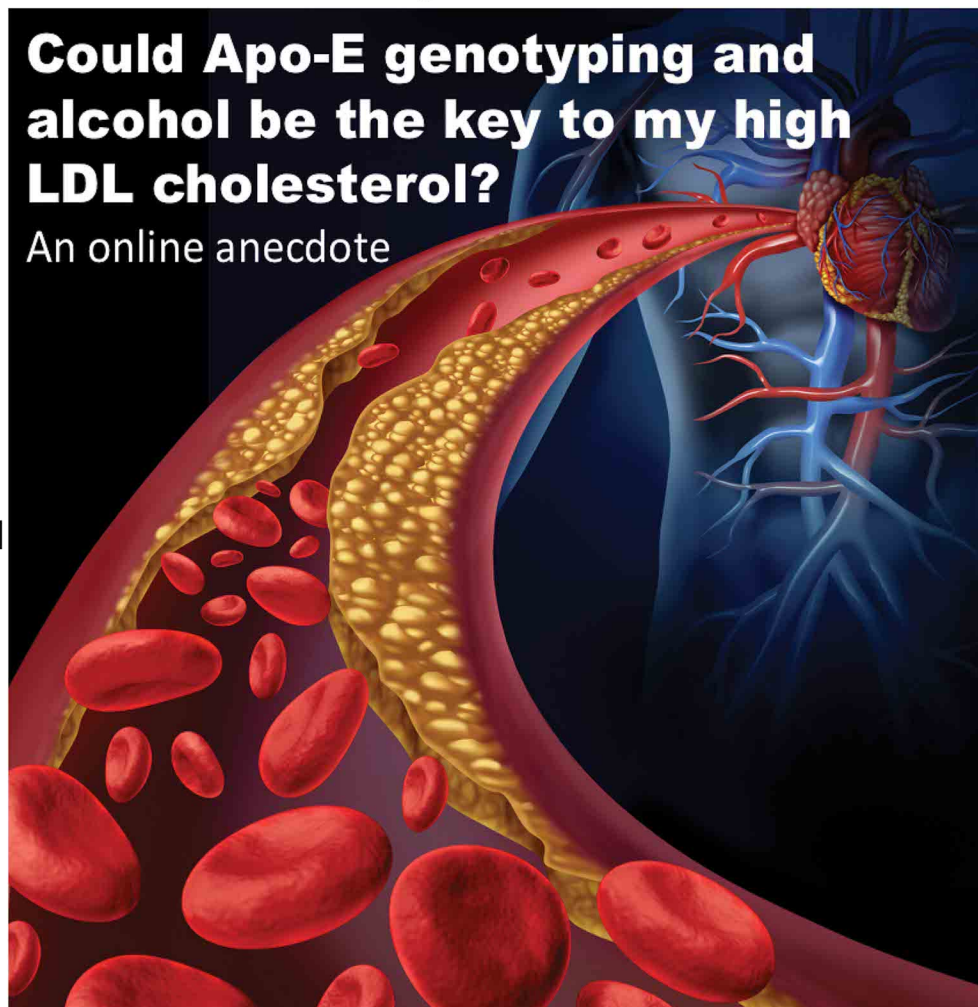
Maximal NO release measured 267 ± 29 nM in aortic endothelium of SHR rats and 214 ± 20 nM for diabetic SHR rats; $[NO]/[ONOO(-)]$ was 0.88 ± 12 and 0.61 ± 0.08 , respectively.

$[NO]/[ONOO(-)]$ ratios below one indicate a high uncoupling of eNOS, endothelial dysfunction and high nitrooxidative stress.

After five weeks, nitric oxide (NO) and peroxynitrite (ONOO(-)) were measured in aortic and glomerular endothelial cells. A tandem of nanosensors was used to simultaneously measure NO and ONOO(-) concentration and their ratio $[NO]/[ONOO(-)]$ was monitored with a time resolution better than 10 μ s and detection limit 1 nM. $[NO]/[ONOO(-)]$ was applied as a marker of endothelial NO synthase (eNOS) uncoupling, endothelial dysfunction and nitrooxidative stress.

Could Apo-E genotyping and alcohol be the key to my high LDL cholesterol?

An online anecdote



Atorvastatin treatment partially restored endothelial

function by increasing NO level by 98%, reducing ONOO(-) by 40% and favorably elevating [NO]/[ONOO(-)] to 1.1 ± 0.2 for diabetic SHR rats and 1.6 ± 0.3 for SHR rats.

The effects of atorvastatin were similar in glomerular endothelial cells and were partially reproduced by modulators of eNOS or NADPH oxidase.

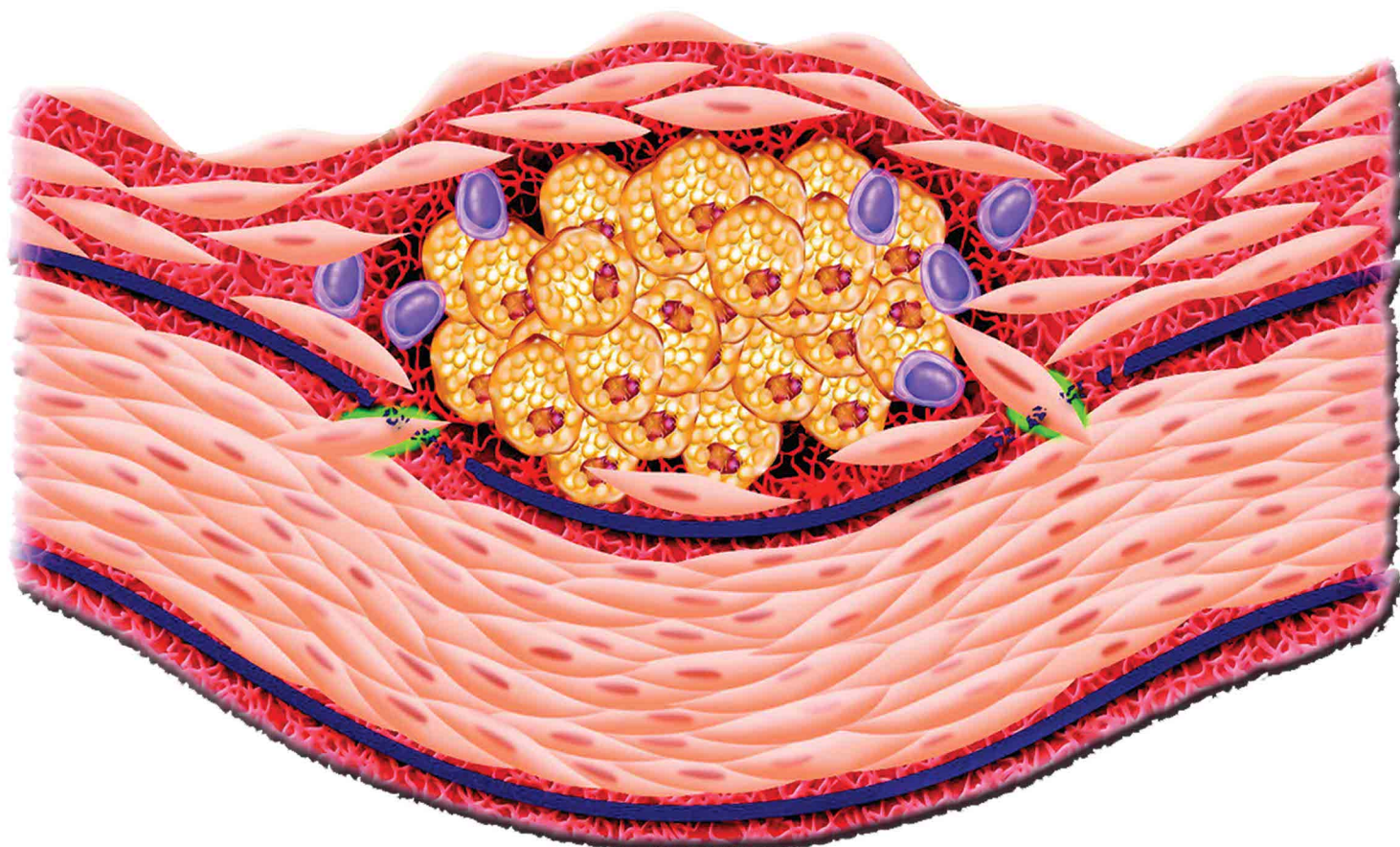
Atorvastatin had no significant effect on fasting glucose or total cholesterol levels but reduced mean BP by 21% and 11% in diabetic and non-diabetic animals, respectively.

Atorvastatin also reduced RANTES levels by 50%.

Atorvastatin favorably increased the [NO]/[ONOO(-)] balance,

enhanced endothelial cytoprotective NO, decreased cytotoxic ONOO(-) and reduced BP, inflammation and RANTES levels in diabetic, hypertensive rats without altering cholesterol levels.

These findings provide insights into mechanisms of restoration of endothelial function and vascular protection by atorvastatin in diabetes and hypertension.



The Unseen Costs of Hypoglycemia in Diabetes

Diabetes UK Professional Conference. March 11-13, 2015; London, UK.
Abstracts A63-A68, presented March 13, 2015

LONDON – The prevalence of hypoglycemic episodes among patients with diabetes is higher than previously thought and is associated with increased length of hospital stay and higher costs, attendees at a recent UK diabetes conference heard.

These episodes more than double the length of hospital stay and increase the risk of in-hospital mortality, increasing hospital costs by almost a quarter, doctors told a session at the Diabetes UK Professional Conference, held on March 11–13. But educational measures can reduce the number of severe episodes, they explained.

The session was chaired by David Russell-Jones, MD, from the Royal Surrey County Hospital, Guildford, United Kingdom.

"Once people are admitted, the costs spiral out of control, and that should give us an opportunity to make very robust business cases to try to prevent this," he observed.

Summarizing the session for Medscape Medical News, he said: "What was quite novel here is that hypoglycemia in patients in hospitals is actually much more common...than one would expect from the randomized clinical-trial data." He added: "It leads to a greater length of stay and a huge health cost, and this is something that needs to be addressed."

Dr Russell-Jones explained that while that the cost of hypoglycemia is not "high on the worry list of many managers," the case for prioritizing hypoglycemic episodes is clear.

The well-attended session was divided into presentations that looked at the prevalence and incidence of hypoglycemic episodes in various settings and their consequences, as well as ways in which severe episodes could be prevented.

Hypoglycemia: More Common Than Thought

Two presentations from a research team led by Kamlesh Khunti, MD, PhD, from the Diabetes Research Centre, University of Leicester, United Kingdom, concluded that the prevalence of hypoglycemic episodes reported in clinical trials is likely to be an underestimate, and the findings highlight the need for educational interventions and individualized therapies, they said.

The first examined the prevalence and incidence of hypoglycemia among type 2 diabetes patients on oral therapies and insulin and involved a systematic search of the Medline, Embase, and Cochrane databases for relevant trials published to February 2014, yielding 46 studies, with a total of 532,542 patients.

The researchers showed that the prevalence of mild/moderate hypoglycemia was 44%, while that of severe hypoglycemia was 6%. The respective incidence of mild/moderate and severe hypoglycemia was 19 and 0.8 episodes per person-year.

Dr Khunti also presented data from the Hypoglycemia Assessment Tool (HAT), a noninterventonal, multicenter, 6-month retrospective and 1-month prospective study of hypoglycemic events in 24 countries.

In all, 83.4% of type 1 patients and 50.8% of type 2 reported experiencing one or more hypoglycemic events in the 4 weeks before baseline, at a rate of 51.5 and 16.5 events per patient-year, respectively. However, incidence rates were higher in the 4 weeks after baseline, at 73.3 events per person-year for type 1 patients and 19.3 events per person-year for type 2 patients.

Dr Kunti concluded that the findings suggest that hypoglycemia is underreported in self-assessment questionnaires.

The highest prevalence and incidence of hypoglycemia was among patients taking insulin, at 50% and 23 events per person-year, respectively, for mild/moderate episodes and 21% and one event per person-year, respectively, for severe episodes.

Patients with type 1 or type 2 diabetes aged 18 years and older completed a self-assessment questionnaire to document the number of severe and nonsevere hypoglycemic events over the past 6 months and filled in 4-week patient diaries of hypoglycemic events.

Inpatient Hypoglycemia Leads to Worse Outcomes

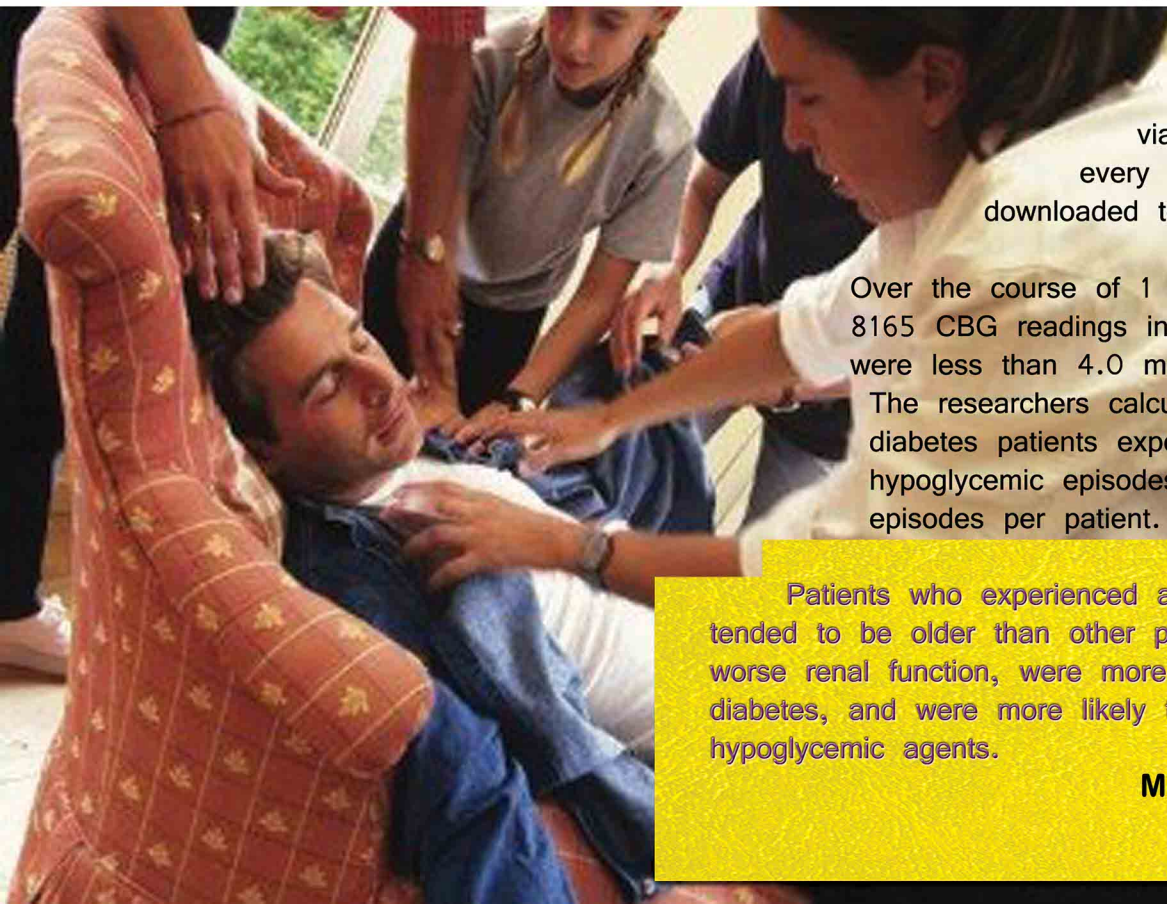
Another talk during the session looked at frequency of hypoglycemia in a large acute teaching hospital in the United Kingdom.

Charlotte Hammond and Georgina Keogh, medical students at the Leeds Teaching Hospitals NHS Trust, presented their pilot study of inpatient capillary blood glucose (CBG) values, which are taken via glucometers present on every ward and automatically downloaded to an electronic database.

Over the course of 1 month, 339 (4.15%) of 8165 CBG readings in 244 diabetes inpatients were less than 4.0 mmol/L.

The researchers calculated that 39.0% of diabetes patients experienced one or more hypoglycemic episodes, at a mean of 2.7 episodes per patient.

Patients who experienced a hypoglycemic episode tended to be older than other patients, had significantly worse renal function, were more likely to have type 1 diabetes, and were more likely to be receiving hypoglycemic agents.



The students also found that patients with a hypoglycemic episode had a significantly longer length of hospital stay than diabetes patients without such an episode, at 26.8 days vs 20.21 days ($P = .04$).

The Real Cost of Hypoglycemic Episodes

In another presentation, Marc Evans, MD, a consultant diabetologist at Llandough Hospital and the University Hospital of Wales, Cardiff, reported a retrospective, matched-cohort study on all UK insulin-treated diabetes inpatients who experienced a severe hypoglycemia event over a 10-year period.

Patients with hypoglycemic episodes had a significantly longer mean length of hospital stay than unaffected patients, at 11.91 days vs 4.80 days ($P < .0001$), and were significantly more likely to die in the hospital, at an odds ratio of 1.439 ($P < .0195$).

The average cost of hospital admission was also higher for patients who experienced a hypoglycemic episode, at £2235 per patient admission vs £1591 for those who did not. Multivariate analysis indicated that the cost for patients with an episode was 38.7% higher than for patients without an episode ($P < .0001$).

Patient Education May Reduce Severe Hypoglycemia

Finally, Ester Yeoh, MD, from the Diabetes Centre, King's College Hospital, London, United Kingdom, presented the results of a systematic review and meta-analysis of educational interventions to restore impaired awareness of hypoglycemia in type 1 diabetes patients, involving a total of 22 studies.

In particular, group-based psychoeducational programs, such as the **Dose Adjustment for Normal Eating-Hypoglycemia Awareness Restoration Training** (DAFNE-HART), appeared to improve hypoglycemia awareness and reduce severe hypoglycemia rates by up to 45% in patients with impaired hypoglycemia awareness.

Furthermore, 1-year mortality following discharge was significantly higher among patients who had a hypoglycemic episode than nonhypoglycemic patients, at 36.7% vs 22.2% ($P = .03$).

Analysis of patient demographics may help identify at-risk patients, they concluded.

Using data from the UK Clinical Practice Research Datalink database, Dr Evans and colleagues paired 1079 patients with type 1 or type 2 diabetes patients who experienced an inpatient hypoglycemic episode with the same number of patients who did not have an episode, matching them by age, primary diagnosis, and diabetes type.

Among patients who had a hypoglycemic episode, increased age was associated with an increased risk of all-cause mortality, at an odds ratio of 1.026 ($P < .0001$).

