

News and Views

Treatment Outcomes of Drug-resistant TB with Comorbid Diabetes

Patients with drug-resistant (DR-TB) or multidrug-resistant tuberculosis (MDR-TB), who had concomitant diabetes mellitus have higher probability of unsuccessful treatment and treatment failure, while those without diabetes were more likely to be cured, according to a new study published in *BMC Infectious Diseases*.¹

This study was a systematic review and meta-analysis, which included 25 studies following a comprehensive search of the PubMed, Excerpta Medica Database (EMBASE), Web of Science, ScienceDirect and Cochrane Library databases for papers published in English until July 2022. The focus of the search was on studies that reported the association between diabetes mellitus and treatment outcomes among patients with DR-TB and MDR-TB. Together these studies involved a total of 16,905 participants with DR-TB, of which nearly 60% had MDR-TB and 11.5% had a history of diabetes mellitus.

Among all patients with DR-TB, the pooled odds ratio (OR) for unsuccessful treatment outcomes was 1.56. The pooled OR for cured treatment outcomes was 0.64. The pooled OR for completed treatment outcomes was 0.63 and for treatment failure, it was 1.28.

In the group of patients with MDR-TB, the pooled OR for unsuccessful treatment outcomes was 1.57, for cured treatment outcomes it was 0.55 indicative of lower likelihood of successful treatment. For completed treatment outcomes, the OR was 0.66 indicating a decreased likelihood of treatment completion. Lastly, the pooled OR for treatment failure was 1.37 suggesting an increased risk of treatment failure.

The pooled OR for risk of death among patients with either DR- or MDR-TB who also had diabetes was 1.32; it was 1.33 for those without diabetes.

The findings suggest that diabetes mellitus is a risk factor for adverse outcomes in patients with DR-TB or MDR-TB, which may be due to the higher bacterial burden and reduced effectiveness of the anti-TB drugs. Controlling the high blood glucose levels therefore may result in a more favorable prognosis for these patients. This study underscores the significance of diagnosing diabetes mellitus in individuals with DR-TB/MDR-TB as coexisting diabetes complicates the control and

management of TB, making it more challenging to combat the disease effectively.

Reference

1. Xu G, et al. Diabetes mellitus affects the treatment outcomes of drug-resistant tuberculosis: a systematic review and meta-analysis. *BMC Infect Dis.* 2023;23(1):813.

High FSH Linked to Lower Prevalence of NAFLD in Older Women with Type 2 Diabetes

Postmenopausal women with type 2 diabetes with lower follicle-stimulating hormone (FSH) levels are at a higher risk of developing nonalcoholic fatty liver disease (NAFLD), suggests a recent study published in the *Journal of Diabetes*.¹

In this cross-sectional study, 583 postmenopausal Chinese women diagnosed with type 2 diabetes mellitus were enrolled from January 2017 to May 2021. The average age of the participants was 60.2 years. Data pertaining to anthropological characteristics, biochemical indexes and abdominal ultrasound findings were collected retrospectively. NAFLD was diagnosed with the help of abdominal ultrasound. FSH levels were quantified via enzymatic immunochemiluminescence and then categorized into tertiles for further analysis. Logistic regression was performed to evaluate the relationship between FSH levels and the prevalence of NAFLD.

Out of the 583 women who were recruited, 332, accounting for 56.94% of the sample, were found to have NAFLD. When postmenopausal women in the lowest tertile of FSH were compared with those in the highest tertile, it was observed that the latter group had a significantly lower prevalence of NAFLD ($p < 0.01$). After controlling for variables such as age, duration of diabetes, metabolism-related indicators and other sex-related hormones, a negative association between FSH and NAFLD was detected with OR of 0.411 ($p < 0.001$). Subgroup analysis revealed no significant interactions between FSH and metabolic factors in relation to the presence of NAFLD.

This study has demonstrated a negative correlation between FSH levels and NAFLD in postmenopausal women with type 2 diabetes. These findings propose that FSH may potentially serve as a valuable biomarker or risk factor for the screening and identification

of postmenopausal women at a heightened risk of developing NAFLD.

Reference

1. Ge S, et al. Association between follicle-stimulating hormone and nonalcoholic fatty liver disease in postmenopausal women with type 2 diabetes mellitus. *J Diabetes*. 2023;15(8):640-8.

Benefits of Semaglutide in Patients with Severe Obesity and History of Bariatric Surgery

Adults who had previously undergone bariatric surgery for severe obesity and did not respond to the surgery achieved comparable weight loss results to those who had no history of the surgery when they started taking once-weekly semaglutide, according to a new study published in the journal *Obesity*.¹

This retrospective cohort study was conducted by researchers from the University Hospital of Montpellier and University of Montpellier in France to evaluate the efficacy of semaglutide 2.4 mg in patients with severe obesity with body mass index (BMI) 40 kg/m² or higher. These patients had undergone bariatric surgery, either sleeve gastrectomy or gastric bypass, but had been either unsuccessful in achieving satisfactory weight loss or had regained weight. They were compared to patients without a previous history of bariatric surgery but had BMI within the similar range.

Between April 2022 and October 2022, a total of 111 participants were included for the analysis; of these, 36 had a history of bariatric surgery and were categorized as BS+ group, while the remaining 75 did not and were clubbed as the BS- group. In the BS+ group, majority (n = 28) had a sleeve gastrectomy, while 8 had undergone gastric bypass surgery. All of the patients were given semaglutide treatment for a period of 24 weeks with an initial dose of 0.25 mg per week subcutaneously, which was gradually increased until reaching a final dosage of 2.4 mg per week. The effectiveness of the treatment was evaluated by measuring the difference in percentage of weight loss at 24 weeks, changes in BMI and waist circumference between the two groups.

The overall weight loss at 24 weeks was significant amounting to 9.1%. In the BS+ group, treatment with semaglutide led to a significant weight loss of 9.8%, with no notable difference in weight loss compared to the BS- group, which experienced weight loss of 8.7%.

After 24 weeks, 72% of the bariatric surgery group lost minimum of 5% of their body weight, with 36% achieving a weight loss of at least 10% and 8% losing 15% or more of their weight. The BS- group showed

comparable results, with 62% losing at least 5% of body weight, 31% achieving a weight loss of at least 10%, and 8% experiencing a 15% or greater weight loss after 24 weeks. The waist circumference reduced by 9.2 cm in the BS+ group and 7.8 cm in the BS- group.

Both groups showed similar reductions in glycated hemoglobin (HbA1c), low-density lipoprotein (LDL) cholesterol, triglycerides and serum glutamic-oxaloacetic transaminase (SGOT). Adults who had previously undergone bariatric surgery experienced a decrease in Fibrosis-4 score, while those who had never had surgery did not. The patients in BS+ group did not encounter any additional side effects when compared to those in the BS- group. Semaglutide is FDA approved for chronic weight management in adults with obesity or overweight with at least one weight-related condition, e.g., high blood pressure, type 2 diabetes or high cholesterol as adjunct to lifestyle modifications.

According to the authors, this is the first study to showcase the effectiveness of semaglutide treatment in patients with a history of bariatric surgery versus those without. Both groups had comparable weight loss outcomes. The improvement in cardiometabolic parameters and fibrosis was also similar to those without a history of bariatric surgery. The study specifically focuses on individuals with severe obesity, who also had comorbid conditions such as dyslipidemia, hypertension, heart disease or obstructive sleep apnea. This group of patients, especially those who regained significant amount of weight, has hitherto been excluded from clinical trials thinking that pharmacotherapy would be ineffective. The findings of this study debunk this assumption and highlight semaglutide 2.4 mg as a safe potential treatment option for this specific population group, who have not been able to achieve the desired weight loss and still have a BMI in the severely obese category. "These findings have the potential to inform clinical decision-making and guide future research efforts aimed at improving outcomes in this specific patient population", write the authors.

Reference

1. Bonnet JB, et al. Semaglutide 2.4 mg/wk for weight loss in patients with severe obesity and with or without a history of bariatric surgery. *Obesity (Silver Spring)*. 2024;32(1):50-8.

Risk Factors for Poor Glycemic Control in Diabetes Patients

Patients who are on oral hypoglycemic drugs and insulin and also have pathological proteinuria double their odds of having poor glycemic control, suggests a

study published January 2, 2024 in the *Journal of Global Health Reports*.¹

This cross-sectional study aimed to assess the long-term management of patients with diabetes and identify the factors that contribute to inadequate glycemic control. The study recruited 226 diabetic patients out of the 268 attending an outpatient clinic at Saint-Nicolas Hospital in Saint-Marc, Haiti from March to May in 2022. The patients were questioned by examiners to evaluate the association between poor glycemic control, as per the American Diabetes Association criteria, and demographic and clinical factors identified from a literature review.

In this study, nearly 85% of the participants were female, with a mean age of 60 years. Almost 60% of the study subjects had diabetes for a minimum of 5 years and 67.26% had poorly controlled diabetes. Based on the Morisky score, 50.88% of the patients demonstrated good adherence to their treatment. Hypertension as a comorbid condition was present in 95% and 59% were overweight or had obesity. The multivariate analysis conducted after logistic regression revealed that patients with pathological proteinuria were twice more likely to have poor glycemic control with OR of 2.20. Patients on oral hypoglycemic drugs and insulin were also at higher risk of having poor control of their diabetes with OR of 2.58.

In order to prevent acute complications and reduce the risk of long-term complications, as well as lower health care utilization and associated costs, it is crucial to maintain adequate glycemic control. Based on these results, the study suggests that enhancing patient education before optimizing pharmacological treatment could potentially improve glycemic control and prevent micro- and macrovascular complications. However, in order to gain a more comprehensive understanding, a larger study that explores additional potential obstacles is needed to supplement the findings of this current research.

Reference

1. Dorcéus L, et al. Factors linked to poor glycemic control in an outpatient diabetic clinic: a cross-sectional study in Saint-Nicolas Hospital, Haiti. *J Glob Health Rep*. 2024;7:e2023082.

Vaginal Hysterectomy Vis-à-Vis Laparoscopic Hysterectomy for Benign Gynecologic Disease

Vaginal hysterectomy, performed for a benign gynecologic disease is associated with less operative time,

fewer complications and speedier recovery, even though patients had more postoperative pain on the day of surgery, when compared to laparoscopic hysterectomy, according to a study published in the December 2023 issue of the journal *Obstetrics & Gynecology*.¹

This systematic review and meta-analysis aimed to compare the outcomes in women who underwent laparoscopic hysterectomy and vaginal hysterectomy for a benign gynecologic disease.

A total of 23 randomized controlled trials published between 2000 and February 2023 were included in the study following a search of major databases, including PubMed, Scopus, Web of Science, ClinicalTrials.gov and the Cochrane Library. Out of the 2,408 subjects included in the study; 1,105 had undergone vaginal hysterectomy and 1,303 had undergone laparoscopic hysterectomy.

When the two groups were compared, participants in the vaginal hysterectomy group had fewer postoperative urinary tract infections with OR of 1.73. The blood loss during the surgery was also lower in this group. The mean difference in blood loss was -68. Although the total duration of surgery including the recovery time was shorter with vaginal hysterectomy, patients experienced greater postoperative pain on the day of surgery. Other complications such as need for conversion to laparotomy, visceral organ damage, or wound dehiscence, were rare.

These findings suggest that vaginal hysterectomy could be the preferred surgical approach for a benign gynecologic disease condition such as leiomyoma, adenomyosis, uterine prolapse.

Nevertheless, the decision to opt for a particular surgical approach of hysterectomy, minimally invasive or abdominal, should be based on the individual patient after a careful risk-benefit analysis.

The American College of Obstetricians and Gynecologists (ACOG) also recommends vaginal hysterectomy as “the approach of choice whenever feasible”. It recommends laparoscopic hysterectomy as the preferred approach in patients in whom the vaginal route is not possible.²

References

1. Azadi A, et al. Vaginal hysterectomy compared with laparoscopic hysterectomy in benign gynecologic conditions: a systematic review and meta-analysis. *Obstet Gynecol*. 2023;142(6):1373-94.
2. Committee Opinion No 701: Choosing the route of hysterectomy for benign disease. *Obstet Gynecol*. 2017;129(6):e155-9.