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Weight Loss and Health Status 3 Years after Bariatric Surgery in Adolescents

Inge TH, et al (2016) New England Journal of Medicine [1]

Background: Bariatric surgery is increasingly considered for the treatment of adolescents with severe obesity, but few prospective adolescent-specific studies examining the efficacy and safety of weight-loss surgery are available to support clinical decision making.

Methods: We prospectively enrolled 242 adolescents undergoing weight-loss surgery at five U.S. centers. Patients undergoing Roux-en-Y gastric bypass (161 participants) or sleeve gastrectomy (67) were included in the analysis. Changes in body weight, coexisting conditions, cardiometabolic risk factors, and weight-related quality of life and postoperative complications were evaluated through 3 years after the procedure.

Results: The mean (\pm SD) baseline age of the participants was 17 ± 1.6 years, and the mean body-mass index (the weight in kilograms divided by the square of the height in meters) was 53; 75% of the participants were female, and 72% were white. At 3 years after the procedure, the mean weight had decreased by 27% (95% confidence interval [CI], 25 to 29) in the total cohort, by 28% (95% CI, 25 to 30) among participants who underwent gastric bypass, and by 26% (95% CI, 22 to 30) among those who underwent sleeve gastrectomy. By 3 years after the procedure,

remission of type 2 diabetes occurred in 95% (95% CI, 85 to 100) of participants who had had the condition at baseline, remission of abnormal kidney function occurred in 86% (95% CI, 72 to 100), remission of prediabetes in 76% (95% CI, 56 to 97), remission of elevated blood pressure in 74% (95% CI, 64 to 84), and remission of dyslipidemia in 66% (95% CI, 57 to 74). Weight-related quality of life also improved significantly. However, at 3 years after the bariatric procedure, hypoferritinemia was found in 57% (95% CI, 50 to 65) of the participants, and 13% (95% CI, 9 to 18) of the participants had undergone one or more additional intraabdominal procedures.

Conclusions: In this multicenter, prospective study of bariatric surgery in adolescents, we found significant improvements in weight, cardiometabolic health, and weight-related quality of life at 3 years after the procedure. Risks associated with surgery included specific micronutrient deficiencies and the need for additional abdominal procedures. (Funded by the National Institute of Diabetes and Digestive and Kidney Diseases and others; Teen-LABS ClinicalTrials.gov number, NCT00474318.).

Commentaires : Cette étude est une des plus importantes concernant la place de la chirurgie (RYBP ou SG) chez les patients âgés de moins de 18 ans. Cette prise en charge est très encadrée et a fait l'objet de recommandations parues récemment [2,3]. Cette étude confirme dans cette population les résultats connus chez les adultes [4,5] tant sur l'efficacité (poids- comorbidités) que sur l'incidence des complications post-opératoires (réinterventions- carences martiales). Ces résultats dans une population très sélectionnée soulignent l'importance du choix des procédures et des patients en RCP dédiée et du suivi.

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Preoperative Glycosylated Hemoglobin and Postoperative Glucose Together Predict Major Complications after Abdominal Surgery

Goodenough CJ, et al (2015) J Am Coll Surg [6]

Background: Glycosylated hemoglobin (HbA1c) is diagnostic of and a measure of the quality of control of diabetes mellitus. Both HbA1c and perioperative hyperglycemia have

been targeted as modifiable risk factors for postoperative complications. The HbA1c percent cutoff that best predicts major complications has not been defined.

Study Design: A prospective study of all abdominal operations from a single institution from 2007 to 2010 was performed. All patients with HbA1c within 3 months before surgery were included. The primary end point was major complication, using the Clavien-Dindo complication system, within 30 days of surgery. Stepwise, multivariate analysis was performed including clinically relevant variables chosen a priori.

Results: Among 438 patients who had a measured HbA1c, 96 (21.9%) experienced a major complication. On multivariate analysis, HbA1c $\geq 6.5\%$ (odds ratio = 1.95; 95% CI, 1.17-3.24; $p = 0.01$) was found to be the most significant predictor of major complications. Glycosylated hemoglobin and glucose were strongly correlated (correlation coefficient 0.414, $p < 0.01$). Predicted probabilities demonstrated that both HbA1c and glucose together contributed to major complications; and HbA1c impacted the ability to achieve optimal perioperative glucose control. Patients with a BMI > 30 kg/m², history of coronary artery disease, and nonwhite race were more likely to have a HbA1c $\geq 6.5\%$.

Conclusions: Elevated HbA1c $\geq 6.5\%$ and perioperative hyperglycemia were associated with an increased rate of major complications after abdominal surgery. Elevated peak postoperative glucose levels were correlated with elevated HbA1c and were independently associated with major complications. More liberal HbA1c testing should be considered in high-risk patients before elective surgery. Safe, feasible, and effective strategies to reduce both HbA1c and perioperative hyperglycemia need to be developed to optimize patient outcomes.

Commentaires : *Nous sortons du cadre de l'obésité pour nous intéresser à l'impact de l'équilibre glycémique dans les suites post-opératoires en chirurgie digestive. Le diabète de type 2 est un facteur débattu d'échec et de complications post-opératoires en chirurgie bariatrique. Cette étude démontre que les patients diabétiques ayant un équilibre glycémique précaire (HbA1c $\geq 6,5\%$) sont plus à risques de présenter une complication majeure (nécessitant une réintervention, un geste endoscopique et / ou un séjour en réanimation). Il s'agissait du seul facteur indépendant de morbidité majeure. Reste à savoir si ce cut-off est applicable à la chirurgie bariatrique et métabolique [7,8].*

Nonalcoholic fatty liver disease

Brunt EM, et al (2015) Nat Rev Dis Prim [9]

Abstract: Nonalcoholic fatty liver disease (NAFLD) is a disorder characterized by excess accumulation of fat in

hepatocytes (nonalcoholic fatty liver (NAFL)); in up to 40% of individuals, there are additional findings of portal and lobular inflammation and hepatocyte injury (which characterize nonalcoholic steatohepatitis (NASH)). A subset of patients will develop progressive fibrosis, which can progress to cirrhosis. Hepatocellular carcinoma and cardiovascular complications are life-threatening co-morbidities of both NAFL and NASH. NAFLD is closely associated with insulin resistance; obesity and metabolic syndrome are common underlying factors. As a consequence, the prevalence of NAFLD is estimated to be 10-40% in adults worldwide, and it is the most common liver disease in children and adolescents in developed countries. Mechanistic insights into fat accumulation, subsequent hepatocyte injury, the role of the immune system and fibrosis as well as the role of the gut microbiota are unfolding. Furthermore, genetic and epigenetic factors might explain the considerable interindividual variation in disease phenotype, severity and progression. To date, no effective medical interventions exist that completely reverse the disease other than lifestyle changes, dietary alterations and, possibly, bariatric surgery. However, several strategies that target pathophysiological processes such as an oversupply of fatty acids to the liver, cell injury and inflammation are currently under investigation. Diagnosis of NAFLD can be established by imaging, but detection of the lesions of NASH still depend on the gold-standard but invasive liver biopsy. Several non-invasive strategies are being evaluated to replace or complement biopsies, especially for follow-up monitoring.

Commentaires: *Cette revue fait la difficile synthèse des données concernant l'épidémiologie et les mécanismes à l'origine des NAFLD. A lire d'urgence !*

One-Anastomosis Gastric Bypass: Why Biliary Reflux Remains Controversial?

Bruzzi M, et al (2016) Obes Surg [10]

Abstract : One-anastomosis gastric bypass is an alternative to the “gold-standard” Roux-en-Y gastric bypass. This technique appears to be safe and efficient, but controversy remains regarding the long-term theoretical risk of subsequent biliary reflux and its possible complications, such as cancer. The aim of the present narrative review was to summarize some of the current thoughts on biliary reflux. Research has established that exposure to chronic bile reflux in humans and rats (outside the “bariatric surgery” box) induce esophageal intestinal metaplasia and esophageal adenocarcinoma. Although one-anastomosis gastric bypass can theoretically induce chronic biliary reflux, the incidence of biliary reflux and risk of cancer have not been

prospectively evaluated. Clarification of this controversial issue is urgently needed.

Commentaire : Le reflux biliiaire et la dénutrition sont les 2 points d'interrogations limitant la diffusion de cette technique [11–13]. Cette revue présente les données historiques obtenues chez l'animal et chez l'homme au cours des gastrectomies pour ulcère ou cancer avec rétablissement de la continuité digestive selon une anse en oméga.

Effect of Wearable Technology Combined With a Lifestyle Intervention on Long-term Weight Loss

Jakicic J, et al (2016) JAMA [14]

Importance: Effective long-term treatments are needed to address the obesity epidemic. Numerous wearable technologies specific to physical activity and diet are available, but it is unclear if these are effective at improving weight loss.

Objective: To test the hypothesis that, compared with a standard behavioral weight loss intervention (standard intervention), a technology-enhanced weight loss intervention (enhanced intervention) would result in greater weight loss.

Design, Setting, Participants: Randomized clinical trial conducted at the University of Pittsburgh and enrolling 471 adult participants between October 2010 and October 2012, with data collection completed by December 2014.

Interventions: Participants were placed on a low-calorie diet, prescribed increases in physical activity, and had group counseling sessions. At 6 months, the interventions added telephone counseling sessions, text message prompts, and access to study materials on a website. At 6 months, participants randomized to the standard intervention group initiated self-monitoring of diet and physical activity using a website, and those randomized to the enhanced intervention group were provided with a wearable device and accompanying web interface to monitor diet and physical activity.

Main Outcomes and Measures: The primary outcome of weight was measured over 24 months at 6-month intervals, and the primary hypothesis tested the change in weight between 2 groups at 24 months. Secondary outcomes included body composition, fitness, physical activity, and dietary intake.

Results: Among the 471 participants randomized (body mass index [BMI], 25 to <40; age range, 18-35 years; 28.9% nonwhite, 77.2% women), 470 (233 in the standard intervention group, 237 in the enhanced intervention group) initiated the interventions as randomized, and 74.5% completed the study. For the enhanced intervention group, mean base line weight was 96.3kg (95% CI, 94.2-98.5) and 24-month weight 92.8 kg (95% CI, 90.6- 95.0) [corrected]. For the standard intervention group, mean baseline weight

was 95.2kg (95%CI,93.0-97.3)and24-month weight was 89.3 kg (95%CI, 87.1-91.5) [corrected]. Weight change at 24 months differed significantly by intervention group (estimated mean weight loss, 3.5 kg [95% CI, 2.6-4.5] in the enhanced intervention group and 5.9 kg [95% CI, 5.0-6.8] in the standard intervention group; difference, 2.4 kg [95% CI, 1.0-3.7]; P=.002). Both groups had significant improvements in body composition, fitness, physical activity, and diet, with no significant difference between groups.

Conclusions and Relevance: Among young adults with a BMI between 25 and less than 40, the addition of a wearable technology device to a standard behavioral intervention resulted in less weight loss over 24 months. Devices that monitor and provide feedback on physical activity may not offer an advantage over standard behavioral weight loss approaches. Trial Registration:clinicaltrials.gov Identifier: NCT01131871.

Commentaires: Cette étude randomisée est une des premières à avoir évalué l'intérêt des objets connectés en plus d'une prise en charge médicale multimodale du surpoids et de l'obésité. L'intérêt de ces dispositifs apparait limitée avec une adhésion au produit assez faible (durée médiane de port quotidien : 4 h/jours pour une durée médiane de port de 170 jours). Du travail reste à accomplir dans l'amélioration de l'ergonomie de ces dispositifs, leur interface, les objectifs et résultats attendus (follow-up, efficacité, complications ?) et la définition des populations pouvant en bénéficier (chirurgie bariatrique ?) pour déterminer quelle est leur place dans la prise en charge de nos patients.

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