

Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active. and serum thyroid stimulating hormone analysis was not available in all patients in the LICU-20 group.

In conclusion, we suggest routine assessment of thyroid function in patients with COVID-19 requiring high intensity care, because they frequently present with thyrotoxicosis due to a form of subacute thyroiditis related to SARS-CoV-2. Considering the currently ongoing pandemic emergency, future studies are encouraged to confirm, or counter, these results. Thyroid cytology or histology and longitudinal studies of thyroid (dys)function in these patients would be particularly informative.

We declare no competing interests.

\*Ilaria Muller, Daniele Cannavaro, Davide Dazzi, Danila Covelli, Giovanna Mantovani, Antonio Muscatello, Emanuele Ferrante, Emanuela Orsi, Veronica Resi, Virgilio Longari, Marco Cuzzocrea, Alessandra Bandera, Elisa Lazzaroni, Alessia Dolci, Ferruccio Ceriotti, Tiziana E Re, Andrea Gori, Maura Arosio, Mario Salvi

### ilaria.muller@policlinico.mi.it

Endocrinology (IM, DCo, GM, EF, EO, VR, EL, AD, MA, MS), Infectious Diseases (AM, AB, AG), Nuclear Medicine (VL, MC), Clinical Laboratory (FC), and Medicine-Acute Medical Unit (TER) Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milan 20122, Italy; Thyroid Research Group, Division of Infection & Immunity, School of Medicine, Cardiff University, Cardiff, UK (IM); Department of Clinical Sciences and Community Health (DCa, GM, MA), and Department of Pathophysiology and Transplantation (AB, AG), University of Milan, Milan, Italy; and Internal Medicine, Ospedale di Vaio, Fidenza, Italy (DD)

- Zhou P, Yang XL, Wang XG, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature* 2020; 579: 270–73.
- 2 Guan WJ, Ni ZY, Hu Y, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. N Engl J Med 2020; **382:** 1708–20.
- 3 Van den Berghe G. Non-thyroidal illness in the ICU: a syndrome with different faces. *Thyroid* 2014; **24**: 1456–65.
- 4 Fliers E, Bianco AC, Langouche L, Boelen A. Thyroid function in critically ill patients. Lancet Diabetes Endocrinol 2015; 3: 816–25.
- 5 Desailloud R, Hober D. Viruses and thyroiditis: an update. *Virol J* 2009; **6:** 5.
- 6 Guimarães VC. Subacute and riedel's thyroiditis. In: Jameson JL, De Groot LJ, eds. Endocrinology Adult and Pediatric (7th edn). Philadelphia, PA: Elsevier Saunders, 2016.

- Brancatella A, Ricci D, Viola N, Sgro D, Santini F, Latrofa F. Subacute thyroiditis after SARS-CoV-2 infection. J Clin Endocrinol Metab 2020; **105:** 1–4. Wei L, Sun S, Xu CH, et al. Pathology of the
- Wei L, Sun S, Xu CH, et al. Pathology of the thyroid in severe acute respiratory syndrome. Hum Pathol 2007; 38: 95–102.
- Li MY, Li L, Zhang Y, Wang XS. Expression of the SARS-CoV-2 cell receptor gene ACE2 in a wide variety of human tissues. Infect Dis Poverty 2020; 9: 45.
- 10 Pearce EN, Bogazzi F, Martino E, et al. The prevalence of elevated serum C-reactive protein levels in inflammatory and noninflammatory thyroid disease. *Thyroid* 2003; **13**: 647–48.

# Bariatric and metabolic surgery during and after the COVID-19 pandemic

In The Lancet Diabetes & Endocrinology, Francesco Rubino and colleagues discussed the prioritisation of bariatric and metabolic surgery during and after the COVID-19 pandemic.<sup>1</sup> We congratulate the authors for bringing up this important discussion, since difficulties around future care of obesity and type 2 diabetes might be a major problem within this context.

We would like to point out, however, our disagreement with the algorithm for prioritisation for bariatric and metabolic surgery in patients with type 2 diabetes. Many diabetes characteristics the authors suggest be prioritised are associated with reduced long-term benefits (which we previously discussed in a review<sup>2</sup>), but we would like to focus on one point here: established cardiovascular disease. This suggestion goes against current evidence.

Although many good-quality observational data suggest that cardiovascular disease risk and mortality are reduced after bariatric and metabolic surgery, the number of patients evaluated that already had cardiovascular disease is very small, and even smaller if we consider those with type 2 diabetes.<sup>2</sup> In the large Swedish Obese Subjects study, although similar benefits were suggested, only 1.5% of patients had a history of cardiovascular disease, and only 21 patients with cardiovascular disease were submitted to surgery.<sup>3</sup>

In randomised controlled trials of bariatric and metabolic surgery in diabetes, there are few mentions of patients with established cardiovascular disease, and in some of these studies, such as the large and highly cited STAMPEDE, previous cardiovascular disease was an exclusion criterion, according the details registered on ClinicalTrials.gov (NCT 00432809). Early this year, in a retrospective study of nearly 7000 patients who had bariatric and metabolic surgery for obesity, only 3.6% had a history of cardiovascular disease, and the rates of post-operative complications in those patients were significantly higher than in patients without previous cardiovascular disease.<sup>4</sup> The authors concluded that additional research is necessary to define the benefits of bariatric and metabolic surgery in this population. The exact number of patients with type 2 diabetes and a history of cardiovascular disease who have been submitted to bariatric and metabolic surgery and whose outcomes have been studied is unknown, yet is probably too small to draw any definitive conclusion to put such patients on a priority list.

Moreover, we should bear in mind that, on the contrary, this particular population with type 2 diabetes and a history of cardiovascular disease is the most studied regarding long-term safety and benefits in cardiovascular outcome trials with drugs (with more than 50 000 patients studied), and the known cardiovascular and renal benefits of both SGLT2 inhibitors and glucagon-like peptide-1 receptor agonists are clear.<sup>5</sup>

Therefore, we agree with most of Rubino and colleagues' work<sup>1</sup> and that much effort will have to be made regarding evidenced-based therapies, including bariatric and metabolic surgery for obesity and type 2 diabetes following the COVID-19 pandemic, but it is still unwise and incorrect to prioritise this procedure over drug therapy in a population in whom almost no studies exists about the former treatment and several investigations do exist concerning the latter.

BH has received travel grants from Novo Nordisk and Aché Pharmaceuticals, has received honoraria for lectures from Novo Nordisk and Eli Lilly, and is on the advisory board for Novo Nordisk and Eli Lilly. MCM has received travel grants from Novo Nordisk; received honoraria for lectures from Novo Nordisk, EMS Pharmaceutical, and Eurofarma Pharmaceuticals; and is on the advisory board for Novo Nordisk

#### \*Bruno Halpern, Marcio C Mancini brunohalpern@hotmail.com

Obesity Group, Department of Endocrinology, Hospital das Clinicas Universidade de São Paulo, São Paulo, Brazil (BH, MCM); Department of Epidemiology and Prevention, Brazilian Association for the Study of Obesity, São Paulo, Brazil (BH); and Brazilian Society of Endocrinology and Metabolism, São Paulo, Brazil (MCM)

- Rubino F, Cohen RV, Mingrone G, et al. Bariatric and metabolic surgery during and after the COVID-19 pandemic: DSS recommendations for management of surgical candidates and postoperative patients and prioritisation of access to surgery. Lancet Diabetes Endocrinol 2020; 8: 640–48.
- 2 Halpern B, Mancini MC. Metabolic surgery for the treatment of type 2 diabetes in patients with BMI lower than 35 kg/m<sup>2</sup>: why caution is still needed. Obes Rev 2019; 20: 633–47.
- 3 Delling L, Karason K, Olbers, et al. Feasibility of bariatric surgery as a strategy for secondary prevention in cardiovascular disease: a report from the Swedish Obese Subjects trial. J Obes 2010; 2010: 102341.
- 4 Pirlet C, Biertho L, Poirier P, et al. Comparison of short and long term cardiovascular outcomes after bariatric surgery in patients with vs without coronary artery disease. Am J Cardiol 2020; **125**: 40–47.
- 5 Zelniker TA, Wiviott SD, Raz I, et al. Comparison of the effects of glucagon-like peptide receptor agonists and sodium-glucose cotransporter 2 inhibitors for prevention of major adverse cardiovascular and renal outcomes in type 2 diabetes mellitus. Systematic review and meta-analysis of cardiovascular outcomes trials. *Circulation* 2019; **139**: 2022-31.

We read the article by Francesco Rubino and colleagues with interest.<sup>1</sup> It represents the recommendations of 23 authors on a diverse range of topics around bariatric and metabolic surgery during and after the COVID-19 pandemic, the collation of which is a difficult task. The methodology used to reach this consensus of opinion and recommendations needs to be detailed; we did not come across the use of any established instruments for this exercise, such as the Delphi or modified Delphi approach.<sup>2</sup>

The authors very correctly highlight that the remission rate of type 2 diabetes with surgery is higher for patients with shorter diabetes duration.1 The overarching theme in these recommendations is about prioritising patients who are likely to benefit the most and where delays would be more likely put patients into a more disadvantageous category. We therefore find the authors' recommendation to prioritise patients with diabetes of more than 5 years' duration puzzling and is in direct contradiction to their priority statements.

We would also like to draw the readers' attention to a recent publication by Luigi Angrisani and colleagues,<sup>3</sup> which took a different view from Rubino and colleagues. This article was co-authored by the president of International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO), along with the president-elect and at least seven other current or past presidents of IFSO chapters. Angrisani and colleagues state that patients with higher BMI and multiple comorbidities (with uncontrolled type 2 diabetes being one of the main areas of concern) are at risk of life-threatening COVID-19-related complications in the perioperative setting, thus concluding that surgery should be offered to patients who are more likely to recover from a possible infection.<sup>3</sup> The eligibility criteria for surgery proposed by Angrisani and colleagues included, among others, BMI below 50 kg/m<sup>2</sup> and no or controlled comorbidities.<sup>3</sup>

Considering that obesity is a major risk factor for severe COVID-19 and its related mortality, obesity treatment could offer an opportunity to reduce the burden of COVID-19. Bariatric surgery, which is the most effective treatment in producing sustained, long-term weight loss, came to a standstill globally with the COVID-19 pandemic. Hence, there is a lot of interest in restarting bariatric surgery safely. The two opposing views we highlight might only add to the confusion in the field. A wider consensus is needed to ensure this life-saving treatment is delivered to patients in a timely manner.

We declare no competing interests.

## Vasileios Charalampakis, Basil J Ammori, Varadarajan Baskar, Martin Richardson, \*Rishi Singhal

## singhal\_rishi@hotmail.com

Department of General and GI Surgery (VC) and Department of Diabetology and Endocrinology (VB), Warwick Hospital, South Warwickshire NHS Foundation Trust, Warwick, UK (VC); Department of Surgery, Salford Royal Hospital, Manchester, UK (BJA); Department of Bariatric Surgery, Burjeel Hospital, Abu Dhabi, United Arab Emirates (BJA); Department of Bariatric Surgery, Birmingham Heartlands Hospital, University Hospital Birmingham NHS Foundation Trust, Birmingham, UK (MR, RS); and Healthier Weight, Birmingham, UK (RS)

- Rubino F, Cohen RV, Mingrone G, et al. Bariatric and metabolic surgery during and after the COVID-19 pandemic: DSS recommendations for management of surgical candidates and postoperative patients and prioritisation of access to surgery. Lancet Diabetes Endocrinol. 2020; 8: 640–48.
- 2 RAND Corporation. Delphi method. https:// www.rand.org/topics/delphi-method.html (accessed June 24, 2020).
- 3 Angrisani L, Khidir N Prager G, et al. How are we going to restart elective bariatric and metabolic surgery after the peak of Covid-19 pandemic? Surg Res Rep 2020; 3: 1–5.

The COVID-19 pandemic has caused serious disruptions to the health-care system and has revealed substantial racial, ethnic, socioeconomic, and other health-care disparities. The role of obesity has also been highlighted, as obesity severity appears to be related to higher rates of hospitalisation and poorer clinical outcomes of COVID-19.1 Obesity treatment has been hugely affected by the pandemic, leaving millions of children, adolescents, and adults at high risk for worsening comorbidities, with less access to treatment and increased risk for poor outcomes from COVID-19.

We applaud Francesco Rubino and colleagues' recommendations for bariatric and metabolic surgery during and after the COVID-19 pandemic,