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# DISASTER AND EMERGENCY

M E D I C I N E J O U R N A L

## Obesity and out-of-hospital cardiac arrest — a fatal duet

**Authors:** Ewelina Blazejowska, Aleksandra Gasecka

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## LETTER TO THE EDITOR

### Obesity and out-of-hospital cardiac arrest — a fatal duet

**Ewelina Blazejowska, Aleksandra Gasecka**

*1<sup>st</sup> Chair and Department of Cardiology, Medical University of Warsaw, Poland*

**CORRESPONDING AUTHOR:** Ewelina Blazejowska, 1<sup>st</sup> Chair and Department of Cardiology Medical University of Warsaw, 1a Banacha St., 02-097, Warsaw, Poland; phone: +48 22 599 19 51, e-mail: [eb.blazejowska@gmail.com](mailto:eb.blazejowska@gmail.com)

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We read with great interest the article by Fehler and colleagues [1] regarding the impact of obesity on the return of spontaneous circulation (ROSC) in out-of-hospital cardiac arrest. The study's main findings were that obesity decreased the odds of ROSC by approximately 10.6% and was a significant negative predictor of ROSC. The authors emphasized that medical professionals face challenges in meeting European Resuscitation Council guidelines for patients with obesity, such as achieving the appropriate depth of chest compressions or inserting an intravenous line. Furthermore, the guidelines do not differ for obese patients compared to those of normal weight and do not provide specific recommendations for the obese patient population.

This issue is particularly concerning given the high prevalence of obesity worldwide. According to the World Health Organization (WHO), up to 13% of the world's population struggles with obesity [2]. Obesity promotes the incidence of life-altering and life-threatening health problems, such as type 2 diabetes, cardiovascular diseases and gastrointestinal cancer [3].

Obesity is not only an aesthetic problem or a risk factor, but a chronic disease on its own. In March 2021, the European Commission formally categorized obesity as a noncommunicable disease, emphasizing the need to combat it [4]. As lifestyle and behavioural interventions offer moderate efficacy, obesity treatment strategies should be intensified by adding pharmacological and/or surgical interventions [5].

Until the last few years, bariatric surgery, which results in 25–30% weight loss, was the only efficient option for obesity treatment. However, it is not scalable at the population level, and many individuals are bothered about postoperative complications [5]. Alternatives to bariatric surgery, such as intragastric balloons and endoscopic sleeves, are available but often temporary solutions recommended for patients with less severe obesity or as a bridge therapy for those awaiting bariatric surgery [6].

Until recently, achieving long-term weight normalization with pharmacotherapy posed significant challenges [7]. However, advances in understanding the mechanisms of weight regulation and the gut-brain axis's role in appetite control have led to the development of effective entero-pancreatic hormone-based treatments for obesity, such as glucagon-like peptide-1 (GLP-1) receptor agonists (GLP1R) [8]. GLP1R increases satiety, reduces food intake, delays gastric emptying, stimulates insulin release, and inhibits glucagon secretion in a glucose-dependent manner [5]. Recent clinical trials with GLP1R agonism are showing that breakthrough, drug-based management of obesity is possible [8]

The first GLP1R for obesity treatment liraglutide, was approved in 2014. In 2021, the US Food and Drug Administration approved semaglutide, a second GLP1R for use in addition to a reduced-calorie diet and increased physical activity, resulting in an average weight loss of ~15% after 68 weeks of treatment [9]. In patients with obesity and established cardiovascular disease but without diabetes, semaglutide reduced major adverse cardiovascular events compared to placebo in the SELECT trial. To overcome the barriers related to injections, semaglutide is also available in an oral form, with the 50 mg dosage resulting in 17.4% weight loss compared to 1.8% with placebo and improvements in cardiometabolic risk factors (OASIS 1 trial).

However, we would like to point out that despite the unquestionable benefits of GLP1R, they may not be beneficial in the situation of out-of-hospital cardiac arrest due to delayed gastric emptying, which is also an independent predictor of mortality [10]. Hence, all efforts should be made to achieve long-term weight loss and thus prevent cardiovascular complications before they lead to cardiac arrest in obese patients. If such patients experience cardiac arrest,

with or without the treatment with GLP1R, their chances of survival are substantially lower than the chances of non-obese patients.

To summarize, obesity is a complex and chronic disease that requires a personalized and adaptive approach. Even those who meet treatment goals with new obesity medications might opt for subsequent bariatric surgery to maintain long-term weight loss or to avoid the need for life-long pharmacotherapy. On the other hand, bariatric surgery patients often experience inadequate weight loss or significant weight regain, necessitating further pharmacotherapy.

Considering the currently available plethora of options, a multimodal approach combining lifestyle interventions, pharmacotherapy, endoscopic therapies and bariatric surgery may help individuals achieve long-term goals and improve their quality of life. This comprehensive strategy should become the standard in obesity therapy, to prevent the fatal duet of obesity and cardiac arrest.

## **Article information and declarations**

### **Authors contributions**

All authors contributed equally to the creation of the manuscript.

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### **Conflict of interests**

All authors declare no conflict of interest.

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