

Severe obesity in youth

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CHAPTER 10

IMPACT

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Scientific impact

“Scientific impact is the contribution of results from scientific research to the understanding and advancement of science”

The first aim of this thesis was to gain insight into the impact of severe obesity in youth. The second aim was to optimize treatment strategies for those with the most severe grade of obesity by exploring the applicability of bariatric surgery. The first part of this thesis revealed that youth with severe obesity are negatively impacted, both physically and psychosocially. Besides this, youth with severe obesity are among the most vulnerable groups when a pandemic occurs. In these children and adolescents with severe obesity, a multidisciplinary lifestyle intervention had a positive and sustained effect on health parameters. These effects were even more pronounced in the younger age group. However, for a subgroup of adolescents with severe obesity a lifestyle intervention was insufficiently effective. For these adolescents with severe obesity, additional treatment strategies are warranted. The second part of this thesis displayed that bariatric surgery is as safe and effective in young adults as in adults. Additionally, the majority of the pediatricians, parents and adolescents revealed positive attitudes towards bariatric surgery in youth. Consequently, a clinical pathway for bariatric surgery as an integral part of a comprehensive treatment for adolescents with severe obesity was developed.

Socio-economic impact

“Socio-economic impact is the contribution of results from scientific research to changes in or development of socio-economic sectors and to socio-economic challenges”

Globally, there are 379 million children and adolescents with obesity, and this number continues to rise¹. In addition to the physical consequences associated with obesity, youth with obesity are more likely to fail in high school, become unemployed, remain single or develop psychosocial problems²⁻⁴. This illustrates the enormous social impact of childhood obesity. According to this thesis, youth with severe obesity are more affected compared to youth with less severe forms of obesity. By highlighting the vulnerability of youth with severe obesity, this thesis creates awareness of the importance of effective, long-lasting treatment strategies at an early age in this often overlooked population.

The current cornerstone treatment for severe obesity is a multidisciplinary lifestyle intervention. However, in a subgroup of adolescents with severe obesity, this treatment

proves to be insufficiently effective. Bariatric surgery in addition to a multidisciplinary lifestyle intervention might provide an effective treatment strategy in this group. This thesis explored the applicability of bariatric surgery in youth. We developed a comprehensive clinical pathway for adolescent bariatric surgery. As a result, the studies described in this thesis enriched the care for youth with severe obesity with an additional treatment modality. Currently, adolescent bariatric surgery is only available in the context of scientific research. It is our hope that the delicately designed clinical pathway as provided in this thesis paves the way to its implementation into regular care.

Beyond the social impact of childhood obesity, the economic burden is enormous. A recent meta-analysis revealed that the total annual medical costs of a child with obesity are approximately \$300 higher compared to a child with a normal weight⁵. It can be presumed that these costs are even higher for youth with severe obesity as they more often suffer from weight related complaints compared to those with obesity. The expected excess lifetime healthcare costs are 3.7 times higher for men and 5 times higher for woman who suffered from overweight or obesity during childhood⁶. This thesis contributed to the development of a comprehensive clinical pathway for adolescent bariatric surgery. In this clinical pathway, eligible adolescents with severe obesity are carefully selected for bariatric surgery. The eligible adolescents receive extensive counselling and follow-up, ensuring the surgery's benefits are maximized in terms of both health related and financial outcomes. While the initial costs of bariatric surgery may be high, it is expected that adolescent bariatric surgery will prove to be cost-effective in the long term. Especially as a previous study suggests that adolescent bariatric surgery is cost-effective five years after surgery⁷.

Target audience

The target audience of this thesis are healthcare professionals who treat childhood obesity, as well as youth with severe obesity including their families. Healthcare professionals include, among others, general practitioners, dieticians, psychologists, pediatricians, bariatric surgeons as well as pediatric surgeons. These stakeholders were engaged by presenting the results of this thesis at several national and international meetings. The findings have also been published in multiple scientific journals focusing on obesity. Hereby, creating awareness for the impact of severe obesity in youth, and the challenges associated with its treatment strategies. Additionally, the national media reported several times on adolescent bariatric surgery⁸. Consequently, both healthcare professionals and youth with severe obesity have been informed about the availability of bariatric surgery as a treatment option, albeit in a research context, for a select group of adolescents with severe obesity in the Netherlands. At last, some of the chapters in this thesis were summarized, translated to Dutch and published in the monthly journal of 'Bariatric Groep Nederland', which is a patient federation of bariatric surgery patients.

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