eHealth and Trends in Bariatric Surgery

Rationale

The worldwide impact of overweight and obesity is becoming increasingly clear. Its significant burden on health care continues to grow. Prevention and treatment of obesity has proven to be challenging and depend on various factors. Innumerable therapies have been proposed and explored, ranging from crash diets, improved physical activities, psychological sessions, drug treatment, and operative procedures. Bariatric surgery defines operations where weight loss or stabilization is induced by making anatomical changes by restricting food intake and inducing malabsorption. In the past decade, bariatric surgery has proven its worth as the most effective weight-loss therapy. However, a significant number of patients are still struggling with unsatisfactory weight loss and subsequent weight regain. Numerous efforts have been made to optimize bariatric care, such as enhancement of current operation techniques and development of new procedures. Currently, starting to reach the boundaries of further procedural optimization and shifting toward the focus on improving the support of patients before, and long after, the operation. The importance of patient selection, dedicated bariatric teams, an intensive follow-up program and retaining commitment is starting to become clear.

With the increased worldwide availability of internet access and digitalization, opportunities have opened up to support patients in their journey during the treatment and prevention of diseases. The practice of supporting health by electronic processes and communication is termed eHealth. This novel modality is beneficial in supporting the treatment of various chronic diseases, such as diabetes mellitus, inflammatory bowel disease and cancer. Moreover, its value in the treatment of patients struggling with obesity has also been advocated. Until recently, its beneficial significance in the bariatric population is less studied.

The relevance of optimizing weight loss therapies has never been more significant. The number of patients affected by obesity is increasing at an alarming rate. If this trend continues, the burden of disease and its effect on healthcare will be disastrous. Efforts are needed to put this trend to a halt. As mentioned before, the focus is on optimizing the perioperative support. The high reachability of eHealth solutions warrants a large benefitting potential as addition to standard care. The main goal of the thesis was to assess the value of eHealth within the bariatric care pathway. Furthermore, trends are described that emerged during the conduction of the research question.

Main findings

The results described in this thesis did not consolidate the beneficial value of an eHealth platform and self-monitoring devices in addition to standard bariatric in terms of weight loss, comorbidity reduction and quality of life. However, it was demonstrated that an eHealth platform can reach a large proportion of patients and that data tracking is a promising modality used to detect hidden behavior and provide tailored therapy. Moreover, important and valuable lessons were learned concerning the development of future eHealth solutions and research strategies. This includes the ability of eHealth to replace parts of current care, the potential of data tracking and telemonitoring. Furthermore, trends are described showing a shift towards older bariatric patients and changes in the proportion of bariatric procedures.

Target population

Several stakeholders can be identified that benefit from the results of this thesis. Firstly, patients struggling with obesity and overweight are important stakeholders. The BePatient trial aimed to investigate the potential value of eHealth to improve current bariatric practice. Unfortunately, the results found no grounds for beneficial effects on weight loss and other parameters with the addition of an eHealth platform and self-monitoring devices to standard care. However, the results taught some valuable lessons for future investigations and the development of eHealth modalities, as previously described. Secondly, the findings of this thesis are of interest to bariatric teams worldwide. This includes physicians, dieticians, physiologists, physiotherapists, paramedical personnel and more. In extent to this, health care professionals working with patients with obesity or overweight also have an interest in this thesis, as it can give them insight into the potential value of eHealth solutions in their practice in supporting patients. Furthermore, other disciplines in healthcare, unrelated to obesity or overweight, may have an interest in these findings. It can give them insight into developing eHealth modalities in their own part of health care. Thirdly, commercial companies can also be seen as stakeholders as the role of having a healthy lifestyle is becoming clearer to consumers, eHealth companies capitalize on this and invest in the development of health-promoting applications and devices. The findings described in this thesis can be of value in directing companies toward manufacturing effective and desired eHealth modules.

Innovation

The rise in the prevalence of obesity, combined with worldwide digitalization, reflects the direct relevance of the results. Bariatric treatment teams might find the results beneficial to optimize their treatment plans or to incorporate eHealth solutions in their practice. In addition, the results of the discussed research may serve as a base for future research, as they have identified limitations and opportunities in the current practice of eHealth. As discussed earlier, future studies are needed that focus on other outcomes such as Patient Reported Outcome Measures (PROMS) and patient satisfactory. The promising results of the pilot data tracking study merit further exploration in this field to establish its role in the support of patients. The utilization of eHealth in the form of telemonitoring can be beneficial to promote earlier discharge, which is the subject of ongoing trials. Lastly, the development and assessment of tailored or goal-specific eHealth modules is needed. The abovementioned gap in the literature is subject to future research designs and will further shape and determine the place of the practice of eHealth within all parts of healthcare, including bariatric surgery. The focus should lie on development of accessible, secure and intuitive eHealth modalities, designed in collaboration with patients, health care professionals and end-users. Furthermore, the ongoing improvement of computing power and improvement in artificial intelligence grant opportunities for continuous and intelligent (tele) monitoring. The exact place of eHealth remains unclear however this thesis confirmed its potential as an extension.

To conclude, the surge of eHealth within healthcare is indisputable. While the beneficial value of eHealth in bariatric surgery was not established by the BePatient trial, various opportunities for the development of eHealth solutions and grounds for future research were identified. The proven high potential of eHealth to reach patients advocates further utilization. This thesis contributes to the development and changes to current practices, impacting patients, eHealth developers, and treatment teams all around health care.