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Prehabilitation in gynecological oncology — are we ready to implement the program in polish oncological centers?

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ABSTRACT

Objectives: Prehabilitation is a concept of holistic approach to the patient and includes preoperative efforts focused on optimalization of patient's general condition. The idea of prehabilitation started at the beginning of the 21st century. However, prehabilitation programs in gynecological cancer patients are not standardized and are heterogeneous. The aim of the study it to present the concept of prehabilitation and propose prehabilitation protocol to be introduced in Polish oncological centers

Material and methods: A search in PubMed, Medline, EMBASE (Ovid) and PsycINFO databases was conducted using the following keywords: prehabilitation, gynecological, abdominal surgery, and cancer. The primary outcomes were complications, hospitalization stay, intensive care unit transfer rate, blood loss, wound healing, and reoperation rate. The search was performed in July 2022 and covered the period from 1st January 2000 till 30th June 2022.

Results: A total number of 1,118 articles have been identified. Out of all eligible papers only 42 fulfilled the research criteria and were included in the study. The analysis showed that there is no standardized prehabilitation protocol for gynecological cancer surgery, although most include three-modal approach — physical activity, nutrition, and psychological intervention. There is no standard model for physical capacity evaluation, however, 1,118 6 Minute Walk Test (6MWT) is the most common. Frailty evaluation is based on different measurements that prevent from direct comparison of obtained results between studies.

Conclusions: We are not ready to implement the prehabilitation program in polish oncological centers. The main reason elvicz is: lack of accredited ovarian cancer centers, lack of well-established standardized prehabilitation programs for gynecological malignancies (ovarian cancer especially), and lack of proper information for patients about advantages of adequate preparation elvic expected surgery. Furter studies on different prehabilitation programs and information campaigns both for patients and gynecologist are required to make implementing prehabilitation possible in Poland.

Keywords: prehabilitation; ERAS; gynecological oncology; gynecological cancer; surgery

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INTRODUCTION

All gynecological cancer patients, especially those fragile, requires pre-operation assessment as well as proper preparation for the surgery. In the case of endometrial cancer most procedures are performed with minimally invasive approach where strict dietary preparation except body mass reduction is not strictly required. Similarly, in patients diagnosed with cervical cancer, the surgery is not as extensive as in case of ovarian malignancies what implies the possibility of shortening the time between diagnosis and

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surgical treatment. In contrast, most ovarian cancer patients undergoing cytoreductive surgery by laparotomy are over 60 years old and often present multiple comorbidities. In order to reduce peri- and post-surgical complications, the prehabilitation programs have been proposed to enhance overall survival and prepare those women for extensive surgical procedure [1–13].

Prehabilitation is a concept of holistic approach to the patient and includes preoperative efforts focused on optimalization of patient's general condition. An idea of prehabilitation started at the beginning of the 21st century, however, the program has been introduced only in some gynecological oncological centers [12, 13]. As it was shown that patients with higher levels of physical fitness generally present reduced postoperative complications rate and that increasing patient's functional capacity reserve improves clinical outcome, the prehabilitation concentrates on physical activity, dietary counseling, smoking, and alcohol consumption cessation, and psychologists support [14, 15]. All those optimalizations can be performed in time between initial diagnosis and upfront or interval debulking surgery.

The contemporary approach to gynecological cancer patients, especially those with cachectic in course of ovarian cancer, include combination of prehabilitation program and the Early Recovery After Surgery protocol (ERAS), as that acts better in sequence than each one alone. Such a combination results in reduction of complications rate, improvement of surgical recovery time, oncological outcome, and decreases the length of hospitalization [11]. Additionally, that necessity of pre- and peri-operative proper management was reflected in the last guidelines published by the European Society for Gynecological Oncology (ESGO) for perioperative care in ovarian and endometrial cancers where the prehabilitation has been added as suggested standard of care [4, 16].

Objectives

The mean duration of the prehabilitation program ranges between 2–6 weeks preoperatively and 4–8 weeks postoperatively. However, prehabilitation programs in ovarian cancer patients are not standardized yet and very heterogeneous [2, 11–13, 17]. For that reason, we aimed to present the concept of prehabilitation and answer the question whether the program might be implemented in Poland and if yes, in what from.

MATERIAL AND METHODS

A search in PubMed, Medline, EMBASE (Ovid) and PsycINFO databases were conducted using the following keywords: prehabilitation, gynecological, abdominal surgery, and cancer. The primary outcomes were complications, hospitalization stay, intensive care unit transfer rate, blood loss, wound healing, and reoperation rate. The search was performed in July 2022 and covered the period from January 1st 2000 till 30th June 2022. Two independent reviewers, who are gynecological oncology specialists and one of the co-authors of this study, assessed all publications in context of their relevance to include in this article. Only full text article written in English was eligible for the review due to limited translation resources.

RESULTS

Research results

A total number of 1,118 articles have been identified. Out of all eligible paper only 42 fulfilled the search criteria and were included in the study: 17 reviews [1–3, 7–9, 11–14, 18–24], 10 published randomized controlled trials (RCT) [10, 18–26], 9 registered ongoing RCT [27–35] and 6 observational studies [5, 10, 15, 36–38].

After careful review of all papers included in the study a few important issues emerged. Firstly, there is no standardized prehabilitation protocol for gynecological cancer patients, although most include three-modal approach — physical activity, nutrition, and psychological intervention. Some include also smoking and alcohol cessation. Secondly, patients in variable health conditions (healthy vs fragile) and different ages (older vs younger) are qualified for the program in available studies hindering the possibility for generalizing the results. Thirdly, there are no standard models for physical capacity evaluation, however, 6MWT is the most common. In addition, the statistical formula for maximal oxygen uptake (VO_{2max}) necessary for exercise planning varies between studies. Finally, frailty evaluation is based on different measurements that prevent from direct comparison of obtained results. All those aspects will be discussed in detail with summary of prehabilitation program principals.

Initial evaluation and follow-up — proposed protocol

Prehabilitation programs should be initiated by consulting the patient by gynecological oncologist, physiotherapist, prehabilitation nurse, dietician, and psychologist. During the first patient's visit an initial patient evaluation including general health, physical activity and fitness evaluation, assessment of nutrition status and fragility, and patient's mood and anxiety assessment are recommended [2, 6–9, 11–13, 38–40]. Please see Figure 1 for details.

Nutrition

Nutrition status assessment should be performed on the first visit to stratify patients into well-nourished and malnourished groups. The nutrition status can be assessed by objective and subjective measures. One of the objective methods to evaluate the malnourished patients is to calculate the Nutritional Risk Index (NRI). NRI is based on

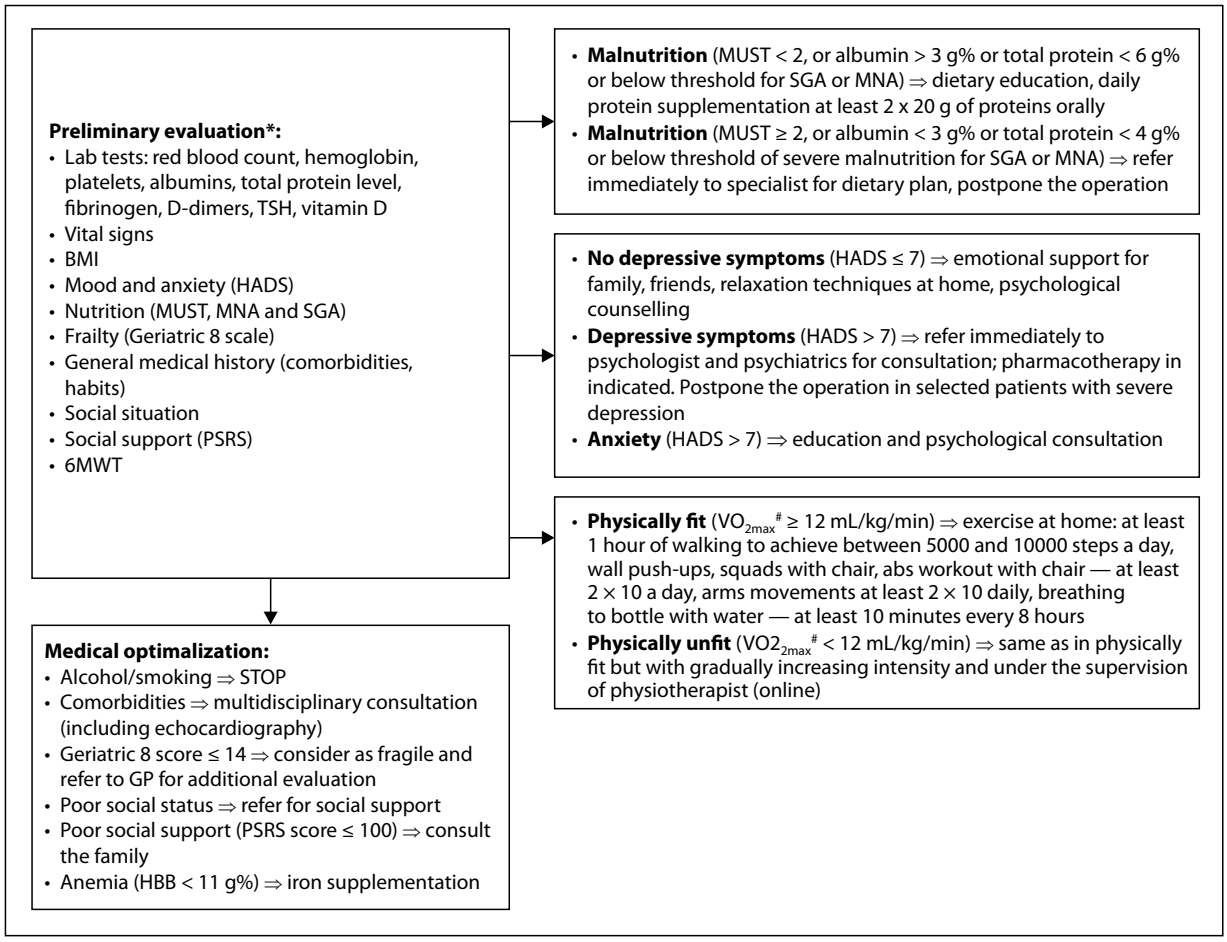

Figure 1. Prehabilitation program flow chart; *2 weeks before surgery in endometrial cancer patients, 2–4 weeks in case of primary debulking surgery in ovarian cancer patients and 8–12 weeks before interval debulking surgery in ovarian cancer patients;# VO_{2max} is calculated based on results of preoperative 6MWT according to the formula published by Burr et al. [50]: VO_{2max} mL/kg/min = 70.161 + (0.023 × 6MWT [m]) – (0.276 × weight [kg]) – (6.79 × sex, where m = 0, f = 1) – (0.193 × resting HR [bpm]) – (0.191 × age [y]) [44]

serum albumin concentrations and is calculated based on the formula: [15.19 x serum albumin (g/L)] + [41.7 x current/ /usual body weight (kg)] (usual body weight = body weight prior to illness). To assess a nutritional status subjectively the Subjective Global Assessment scale (SGA) or Malnutrition Universal Screening Tool (MUST) can be used and have a Polish language validation [6, 41].

Habits

Cigarette smoking has been shown to be a risk factor for postoperative complications in al surgical subspecialties. Complications such as respiratory failure, postoperative pneumonia, wound dehiscence, low oxygen saturation, higher risk of readmission are more common in patients who were smoking preoperatively compared to non-smokers [42, 43]. The protocol assumes asking about smoking and alcohol consumption during all visits and encouraging to cease smoking and alcohol consumption before the treatment [2, 6–9, 11–13, 38–40].

Frailty evaluation

Frailty affects postoperative outcomes in all groups of patients undergoing surgery and is correlated with increased rate of hospital readmission, mortality and postoperative complications. Frailty is defined as loss of patient's metabolic reserves to recover, and vulnerability to any changes in health status [44]. Reliable and objective tools are needed to cautiously qualify patients for surgery and to identify those at greater risk of adverse outcomes. The Clinical Frailty Scale (CFS) is a 9-point scale which is a measure to classify a patient to appropriate group based on patient's medical history [45]. The Canadian Study of Health and Aging Clinical Frailty Scale Another is a 7-points scale tool to assess the frailty with scores ranging from 1 (very fit) to 7 (severely frail) [44]. Alternatively, the electronic version of Frailty Index (eFI) calculator is available in United Kingdom for all general practitioner and surgeons, consisting of 36 deficit variables and includes requirement of care, activity and mobility [45]. None of that scales were validated in

Poland. However, Edmonton Frailty Scale (EFS), Modified Frailty Index,CFS, and Geriatric Scale (G8) are available in polish language and are wildly used [46].

Physical capacity and VO_{2max} evaluation

To determine the optimal set of preoperative exercises, assessment of patient's physical capacity is required. For this purpose, functional capacity and muscle strength tests are used. VO_{2max} have been wildly used to determine patient's functional capacity. In clinical practice VO_{2peak} is often used to estimate VO_{2max}. It has been noticed that planning an exercises program for patient's requires an accurate measure of VO_{2peak} [47]. To assess the maximal amount of oxygen the maximal and submaximal tests are used. The best method to establish maxima VO_2 is cycle ergometer or treadmill ergometer that enables direct evaluation of VO_{2max} based on measured O_2 consumption during the test. However, less fil patient with comorbidities or with cardiac insufficiency are not eligible for that procedure [47, 48]. For that reasons different surrogate tests, although not as accurate in assessing functional capacity as ergometer, are being used [49]. The 6MWT is one to calculate VO_{2peak}. According to the American Thoracic Society guidelines the test involves walking as long as possible by patient indoor, along a flat, straight surface (like corridor) for six minutes. The maximal distance during those 6 minutes is then record. At the beginning and end of the test the blood pressure, heart rate, and blood oxygen saturation are measured [23]. Based on the 6MWT results VO_{2max} is calculated using different formulas. The most widely used formula is that proposed by Burr et al. [50]: VO_{2max} mL/kg/min = 70.161 + (0.023 × 6MWT [m]) – (0.276 × weight [kg]) – (6.79 × sex, where m = 0, f = 1) – (0.193 × resting HR [bpm]) – (0.191 × age [y])

However, different formulas are also used with no strong recommendation which should be used existing [48, 51].

Different methods are used to estimate muscle strength with dynamometer measuring grip strength being the most simply, cheap and objective [52].

Depression and anxiety symptoms

The prevalence rates of anxiety and depression in cancer patients is significantly higher than in healthy patients [2, 16]. To determine a group of patients who requires a psychological consultation various questionnaires are being used. The Beck Depression Inventory and Hospital Anxiety and Depression Scale (HADS) are well designed to assess anxiety level and depressive symptoms [53] Polish versions for both scales are available. Patients who scores > 7 point in depression domain of HADS and > 9 points in BECK should be consulted by a psychologist and remain under psychologist's care during the prehabilitation and further treatment process [53].

Quality of life and social support

To assess a quality of life (QoL) among women with gynecologic cancers various questionnaires are used. One of the most popular are those established by the European Organization for Research and Treatment of Cancer QoL (EORTC) and are used in ovarian (EORTC QLQ-OV28), endometrial (EORTC QLQ-EN24) and cervical cancer (QLQ-CX24) [54]. All are available in Polish language. A measure of QoL allows us to assess a group of patients that require additional support form family, friends of specialist.

Interventions — proposed protocols

According to ESGO guidelines modified Memorial Sloan Kettering Cancer Center algorithm is recommended, especially for fragile patients [16]. In line with this protocol, after the initial evaluation, according to frailty index, the patients are scheduled for prehabilitation program lasting from 1 to 4 weeks. In case of ovarian cancer patients planned only for diagnostic laparoscopy followed by neoadjuvant chemotherapy [55], the program is planned for 1–2 weeks before the intervention and then up to 2 month before the interval debulking surgery [2, 9, 11–13, 56]. One day before the surgery, the patient is reevaluated. The next evaluation is schedule during first follow-up visit (up to 14 days postoperatively) and after second visit (between 30 and 60 days postoperatively). During that postoperative evaluation a Clavien-Dindo classification [57] is used for postoperative complication monitoring [2, 9, 11–13, 56]. Any abnormalities are managed accordingly — please see Figure 2 for details of our proposed prehabilitation protocol to be implied in Poland.

Physical activity

Physical fitness can be improved within preoperative timeframes using appropriate exercise interventions. Exercise program should contain a multi-component training to enhance aerobic capacity to increase lean muscle mass and breathing reserve [18]. Poor preoperative physical performance has been shown to increase the risk of mortality and the number of postoperative complications and prolong functional recovery [58]. The degree of risk for postoperative complications is determined mainly by the lung function. The lung function and a capacity to exercise can be improved by advising an aerobic effort performed daily before surgery [14, 17, 23, 59–62].

The exercise program should contain an Aerobic, Strength, Flexibility, and Respiratory exercises according to VO_{2max} level: > 14 mL/kg/min, 12–14 mL/kg/min, 10–12 mL/kg/min, and <10 mL/kg/min, respectively [2, 23].

Aerobic and anaerobic exercises include cycle ergometer, treadmill, rowing machine and in case of lack of gym or physiotherapist's facilities — jogging, Nordic walking, or fast

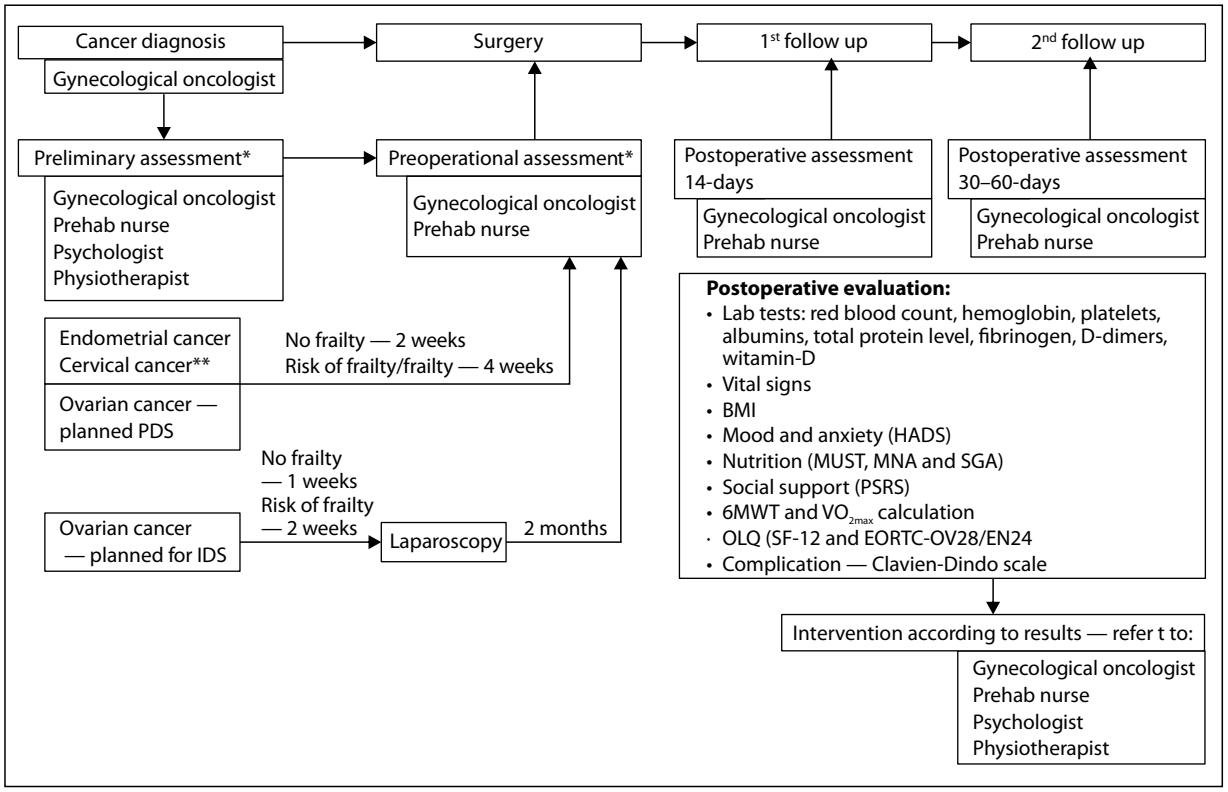

Figure 2. Prehabilitation program flow chart; *based on initial assessment chart Frailty assessment based on Geriatric Questionnaire G8. Scores £ 14 are indictive for frailty

walking [27]. The intensity of exercises must be adjusted to the patient and gradually increased with patient's progress according to VO_{2max} level or M-Borg Scale [27].

Strength exercises include squats, push-ups, shoulder presses, hamstrings curls, and biceps curls and are usually combined with respiratory (breathing) exercises. Every workout session should be started with warm-up and ending with cool down with stretching and flexibility exercises [37].

Flexibility exercises include Standing Quadriceps Stretch, Seated Knee to Chest, Hamstring Stretch, Soleus Stretch, Overhead Side Stretch, Shoulder Stretch, Shoulder Stretch, Lunge in a Chair, and Standing Hip Flexor. Those exercises are aimed directly to the scapular waist, lower limbs, back, and abdomen muscles, and are proved to be effective in increasing general health condition [14, 17, 23, 59–62].

Respiratory (breathing) exercises include 5 sessions per week, 60 min exercise with respiratory muscle stretching, inspiration and coughing training [63]. Those are aimed to increase lung volumes by using positive expiratory pressure (PEP) devices like masks or bottle (blowing in bottle exercise). In the postoperative period PEP is used to increase pulmonary volume and promote clearing the pulmonary secretions [37, 63].

Ideally, the physical workout session should be performed every other day under the supervision of an experienced physiotherapist. Although the majority of prehabilitation programs were most performed in hospital, in most cases, exercises may be implemented at home after providing the instruction how to perform the exercises with video tutorial or leaflets [9, 20, 24, 25]. Both types of training have a beneficial role in the preoperative period but supervised exercises provide better results, mainly due to encourage compliance rate [17]. However, Diaz-Feijoo [37] in her last article revealed that general attachment to the prehabilitation recommendations was 80% to whole program and 86.7% to exercise training. In this study protocol the specific application was used to share with patients' instructive audiovideo materials [37].

Recently, Elsherbini and Carli proposed an example of prehabilitation program consisting of aerobic training, strength training and flexibility training. The training should take a minimum of 150 minutes of aerobic activity over 3–5 times per day, whereas the respiratory training is planned for 2–3 sets of about 10 repetitions every other day. The training session is followed by set of flexibility exercises [9]. The protocol needs further evaluation in clinical practice.

Nutrition

Malnutrition is common in patients undergoing oncological surgery due to cachectic effect of the cancer and cancer diagnosis associated depressive disorders [64]. A severe loss of body weight that is accompanied with ascites and hypoproteinemia might be evident especially in ovarian cancer patients. Patients who are malnourished before surgery have a greater risk of morbidity and mortality and prolonged hospitalization stay [11, 17, 61, 65]. Malnutrition severely impairs recovery after abdominal surgery [18]. Physical preparation for surgery procedure should be accompanied by dietary counseling and protein supplementation [60]. Thus, it is very important to identify malnourished patients at least a few weeks before surgery to enable appropriate nutritional intervention [17].

Major surgery is associated with a profound catabolic state [17, 18]. The body's surgical stress causes increased oxygen consumption and promotes protein catabolism. The aim of the prehabilitation is to ensure sufficient daily protein intake (up to 2.0 g/kg daily) to maintain or facilitate gaining in lean body mass, ameliorating physical frailty, and supporting the efficacy of other interventions such as exercise training. Nutritional intervention act synergistically with physical activity and optimize its effect [17]. Gillis et al. [19] showed that the patients who receive protein supplementation four weeks before surgery had a great improvement in functional walking capacity. More importantly adequate nutritional supplementation before the operation can reduce the number and severity of post-operative complications [17, 42]. Moreover, the studies showed that diet rich in arginine and omega-3 acid reinforce the immune system and thus reduces the number of wound healing complications and hospitalization stay [9, 11–13].

Smoking and alcohol

Some longtime smokers are anxious about quitting smoking just before the surgery because of the fear of withdrawal symptoms. These concerns were reinforced by some of the views of physicians and scientific studies which have been suggesting that losing the cough-promoting effect of cigarettes before any improvement in sputum clearance might predispose to retention of secretions and postoperative pulmonary complications [43]. In an article by Meyers et al. [42], basing on the analysis of the existing literature, no evidence that quitting smoking shortly before surgery increases postoperative complications were showed. On the contrary, patients should stop smoking as soon as possible to avoid further complications and benefit in the long term [43]. Four weeks of smoking cassations are enough to decrease postoperative complications significantly. The longtime smokers should be informed about nicotine replacement therapy in the case of inability to quit smoking [42].

Decreasing consumption of alcohol to recommended limits or total withdrawal of alcoholic beverages reduces incidence of postoperative complications [18]. The complication rate is about 50% higher when drinking three to four units of alcohol per day compared with none to two per day. The complication rate increases by 200–400% when drinking five units of alcohol or more per day. For alcohol abuse, postoperative infections, cardiopulmonary complications, and bleeding episodes are the most prevalent complications in alcohol users [66].

Psychological intervention

The studies show that patients who present with preoperative psychological distress may have a worse recovery and higher risk of mortality and other postoperative complications [17, 67]. Psychological intervention conducted in the preoperative period by health professionals and psychologist both with emotional support from the family members and friends, can positively affect postoperative pain management, behavioral recovery, and length of stay in hospital [2]. All patients being at risk of depression based on HADS, BECK scale or medical interview should be referred for psychiatric and psychological counselling accordingly [9].

Clinical implication of the prehabilitation program

It is well established that physical exercise programs decrease surgical complications rate and length of hospitalization [68]. Patients with adequate pre-operative physical activity and inspiratory muscle strength were showed to have better post-operative outcomes and shorter length of hospital stay [17, 20, 69]. In the recently published case study Carli et al. [5] showed that a three week prehabilitation home-based program with protein-rich diet improved functional lung capacity and cognitive function. Soares et al. [20] compared patients undergoing abdominal surgery who were advised to perform exercises preoperatively with control patients (no exercises) and showed reduction of post-operative complication rates in the intervention group. Barberan-Garcia et al. [21] started a prehab program based on one to three supervised sessions per week based on a cycle-ergometer stationary bicycle preoperative test. Regardless of supervised sessions, patients were recommended to continue personalized program at home unsupervised. The prehab group was characterized by better aerobic capacity preoperatively; the rate of postoperative complications decreased significantly (31% vs 62%, $p = 0.001$) [21]. Li et al. [36] demonstrated significantly improved recovery after abdominal surgery due to colorectal cancer in patients with moderate exercise, protein supplementation and anxiety-reduction interventions. Diaz-Feijoo et al. [37] also noted a shorter hospital stay in the prehab group (median 5 vs 7

days, p = 0.04), as well as shorter median time to start second line oncological treatment after surgery in intervention group compared to control (25 vs 35 days; p = 0.03). The time between cancer diagnosis and interval debulking surgery after neoadjuvant chemotherapy was also showed to be shorter in the prehabilitation group in the recent study by Miralpeix et al. [38].

In the Hughes et al. [70] metanalysis of nine Randomized Controlled Trials (RCTs) patients in the prehabilitation group had a significant reduction in pulmonary morbidity after surgery compared with controls. In another meta-analysis significant improvement in overall morbidity and pulmonary morbidity in prehabilitation group patients have been also notice [69]. Valkenet et al. [62] reviewed 12 RCTs assessing the usefulness of preoperative exercise before abdominal and cardiovascular surgery and found decreasing hospitalization stay and reduction of pulmonary complication in prehabilitation group. Similarly, in another two studies patients who received preoperative intervention stayed for a median of one day less in the hospital and spent less time in the intensive care unit after cardiovascular surgery compered to controls [71, 72]. On the other hand, some studies have not confirmed the effectiveness of prehabilitation like Carli et al. [10] paper that showed no difference in mean length of hospital stay and no reduction of postoperative complications after abdominal surgery in the group of patients scheduled for the 4 week prehabilitation program. The authors suggested that such time was not long enough to demonstrate the positive effects of the prehabilitation [10].

Besides physical preparation for surgery, the multimodal approach involving appropriate nutrition, reduction in preoperative stress, restriction of stimulants (alcohol, cigarettes) seems to be extremely important. Jie et al. [73] showed reduction of postoperative complication rates in malnourished patients undergoing abdominal surgery who received appropriate preoperative nutrition. Recommendation of proper supplementation combined with physical exercise enhances the effects in a synergistic way [19, 58]. In one of the studies in which the significant improvement in the 6MWT was noticed, dietary supplementation was as important as aerobic exercise [58].

Adding a psychological intervention to a prehab program reinforces patients' motivation to follow physical exercise and nutritional modification. It has to be underlined that physical exercise is associated with improvement of anxiety and depressive symptoms [74].

No reports showing an association between the time of introducing prehabilitation program and its outcomes (as a primary outcome) has been published so far, except the results of Carli et al. [17] study. In this study, the duration of prehabilitation program depended on the time frame before surgical, comorbidities and the patient's preoperative functional exercise capacity [17]. The same authors, in the recently published Real Time Clock (RTC), showed that a 4 week prehabilitation program is too short and have no impact on postoperative outcomes [10]. However, some other authors noticed a positive effects of prehabilitation started just two weeks before surgical interventions [6, 7].

Recently Van der Zanden et al. [75] noted that severe physical condition, loneliness or being dependent on others can reduce the compliance to prehabilitation program. Similarly, the place of conducting prehabilitation may influence the results of the program; patient's home seems to be the best option. It was also underlined that a great number of gynecologist's recons that prehabilitation should be addressed only for the frailest group of patients followed by patients during neoadjuvant chemotherapy because those groups have the best chance of achieving the expected results in prehabilitation program. However, prehabilitation is recommended to all oncological patients [4, 16]. Finally, the authors emphasized that oncological patients value the constant contact with a prehabilitation team and that might influence the compliance [75].

Limitation of the study

This study has some limitations. Firstly, this is not a classical systematic review based on PRISMA guidelines. However, such reviews have been recently published [2, 9, 11–13], and the aim of the study was not to review all publication but to propose a program base on a current knowledge on prehabilitation in gynecological oncology. Secondly, the small number of cases and heterogeneity of patient included in most studies concerning age, frailty FIGO stage, grade and type of cancer could elvicz any meaningful statistical analysis. That fact might be a bias of this review. Thirdly, the proposed program must be verified in clinical setting. Thus, it cannot be implemented right know. Further clinical studies, preferably RCTs, are expected.

CONCLUSIONS

Are we ready to implement the program in polish oncological centers? The simplest answer for that question is — NO. Firstly, we are still lacking accredited ovarian cancer centers meeting all ESGO recommendation for proper treatment and patient management including prehabilitation with permanent quality indicators control [16]. The accreditation process has just started in Poland (so far 7 centers have been accredited). Secondly, implementing prehabilitation programs require multidisciplinary approach that might be difficult to achieve in smaller, non-oncological centers operating ovarian cancer. ESGO accreditation procedure might be a solution for that with elimination those centers that are not well prepared for implementing ESGO guidelines [16]. Thirdly, prehabilitation programs are not standardized and well-established and

further studies are needed to extract a program that suits the most [7, 9]. A proposed prehabilitation program that could be implemented in Polish centers is presented in Figure 1 and Figure 2. Finally, patients must be well informed about time needed for prehabilitation that postpones the operation but prepares the patient for the complicated, comprehensive and long surgical procedures [3, 17]. Furter studies on different prehabilitation schemas and information campaigns both for patients and gynecologist are required to make implementing prehabilitation program possible in Poland.

Article information and declaration

Conflict of interest

All the authors declare no conflict of interest.

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