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Trimodal prehabilitation in oncogynaecology

Trimodální prehabilitace v onkogynekologii

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Summary: Prehabilitation is a set of interventions aimed at increasing the patient's endurance and functional capacity before a planned stressful event (oncogynaecological surgery). Currently, prehabilitation is based on three main modalities which are: physiotherapy, nutritional support and psychological support, with others gradually being added. In studies published to date, a positive effect of combined preoperative intervention on the patient's postoperative recovery reduces the risk of perioperative and postoperative complications, shortening the hospital stay. This directly reduces the costs associated with cancer treatment.

Key words: prehabilitation – surgical oncology – Enhanced Recovery After Surgery

Souhrn: Prehabilitace je soubor intervencí s cílem zvýšit odolnost a funkční kapacitu pacientky před plánovanou stresovou událostí (onkogynekologickou operací). V současné době stojí prehabilitace na třech hlavních modalitách, kterými jsou: fyzioterapie, nutriční rehabilitace a psychologická podpora, a postupně se přidávají další. V doposud publikovaných studiích byl prokázán pozitivní efekt kombinované předoperační intervence na pooperační rekonvalescenci pacienta, která přispěla ke snížení rizika perioperačních i pooperačních komplikací a zkrácení doby hospitalizace. Tím se mimo jiné snižují náklady spojené s onkologickou léčbou.

Klíčová slova: prehabilitace – chirurgická onkologie – Enhanced Recovery After Surgery

Introduction

Patients undergoing extensive oncogynaecological surgeries are at high risk for various postoperative complications. This is in part due to their fragility resulting from the oncological disease and in part due to the stress reaction of the body caused by surgery. Prehabilitation is a set of preoperative measures and interventions aimed at improving the patient's general condition, increasing his/her functional and metabolic reserves and preparing him/her for the burden of surgery and postoperative recovery [1,2]. There are papers describing that trimodal prehabilitation, using intensive physiotherapy and nutritional and psychological support, has a more significant effect. Other modalities such as occupational therapy, aromatherapy, meditation and relaxation techniques, addictology and others are being added and tested. In this case, prehabilitation is multimodal. Individual approach and adjustment of the scope of each modality according to the needs of the patient is important [3,4]. Published studies show a strong benefit of trimodal prehabilitation, with a significant difference in physical performance in patients who underwent preoperative preparation. These patients reached 60–80% of their preoperative physical performance at 6–8 weeks postoperatively, whereas in patients who did not undergo prehabilitation, it was only 15–50%. However, the length of prehabilitation and the extent of individual interventions is very heterogeneous across studies [5–9]. Although prehabilitation appears to be a modern approach, it is a mechanism that was already used with soldiers during World War II. Soldiers who failed to meet the conditions of enlistment, most often due to physical weakness or malnutrition, underwent two months of rehabilitation consisting of physical exercise, nutritional support, and education. This program was very successful, with 85% of the soldiers fulfilling the required conditions after two months [10,11]. Nowadays, prehabilitation is experiencing a renaissance, and the number of publications on this topic has been growing significantly in recent years. Currently, there are 300 registered studies on prehabilitation, of which 8 are in the field of gynaecology [12]. In the post-operative period, prehabilitation is followed by ERAS (Enhanced Recovery After Surgery), a set of perioperative and post-operative interventions that minimize the post-operative stress reaction. The combination of prehabilitation and ERAS protocol appears to be an ideal combination of the two programs that supplement each other and enhance the quality of care for patients with advanced cancer [3,13].

Physiotherapy

Physiotherapy is the core modality of most prehabilitation programmes. Many studies show that patients undergoing adequate physical activity before surgery, consisting of aerobic exercise, resistance exercise, and breathing exercises, have better postoperative physical status, lower rates of postoperative complications, and shorter postoperative hospital length of stay [3,14–17]. However, published studies are very heterogeneous in the type, intensity, duration and nature of physical activity. Any physical activity convincingly leads to improved postoperative recovery. Structured exercise under the supervision of a physiotherapist appears to be the most effective [9,18–20]. Improved physical fitness also has a beneficial effect on the psychological state of patients, who describe improved feelings of vitality, increased quality of life and social relationships [21]. Various tests are used to assess the physical condition of patients. The standard is the six-minute walk test, which is used by most studies [3,16–18,22–24] and also corresponds best to the fitness of patients. The results of this test very often correlate with inspiratory lung function capacity [22]. This test is easy to perform and does not require any special equipment. It is measured as the maximum distance a patient is able to walk within 6 min on a flat, firm surface [18,23].

The 6-minute walk test might be used as a strong prognostic factor for the postoperative course of the patient. A test result of less than 350 m in 6 min of walking before surgery is associated with higher short- and long-term mortality and morbidity [24,25].

Other methods testing the physical fitness of patients used in studies include spirometry [26], grip strength, and assessment of body mass index (BMI) and body fat percentage [27].

Nutritional support

Regardless of the nutritional status of the patient, each surgical procedure induces a stress response in the organism, increasing protein catabolism, mobilising energy reserves and increasing oxygen requirements. All this leads to loss of muscle mass [1]. Patients who suffer from preoperative malnutrition have a higher risk of postoperative mortality and morbidity. In such patients, preoperative nutritional support is of great importance [28]. Malnutrition and cachexia are common in patients undergoing major surgery. They may be caused by cancer, chronic inflammation, digestive disorders, decreased appetite and psychological distress [29].

Nutritional support is a benefit for all patients undergoing surgery. Studies have shown that the rate of postoperative complications is reduced in patients with malnutrition who undergo adequate preoperative nutritional rehabilitation [30]. A reduction in the incidence of postoperative complications has also been shown in patients who took high-protein supplements even though they did not suffer from malnutrition before surgery [7].

Patients with malnutrition should be diagnosed soon enough and appropriate nutritional intervention should be initiated as early as possible in a comprehensive and individualised manner. Various tools are used to assess the nutritional status of the patient. One of the most commonly used is the Malnutrition Universal Screening Tool (MUST) scoring system. MUST is a simple and quick method of assessing malnutrition that is also highly informative about the patient's nutritional status [31]. The most recent widely used nutritional scoring system is the Pre-Operative Nutrition Score (PONS) [32]. This questionnaire also uses the MUST scoring system, but with assessment of serum albumin and vitamin D levels. BMI, laboratory parameters, and glucose tolerance test are used as other indicators [3]. Nutritional therapy described in studies is variable and in clinical practice, it is individually tailored. Nutritional interventions have been used to varying degrees: dietary modification, oral high-protein nutritional supplements, and parenteral nutrition in severely malnourished patients [3,7,28,30,33,34]. It is important to mention that nutritional support works synergistically with physical activity. The growth of muscle mass and increasing energy reserves of the organism optimize the prehabilitation effect [34]. On the day of surgery, nutritional support strategies have recently changed. Fasting is shortened and carbohydrate solutions are given. This leads to minimization of protein catabolism caused by the stress response of the organism [35].

Psychological support

The perioperative period is a very challenging time for patients who have just been diagnosed with cancer and are facing a difficult procedure with the risk of potential complications. Patients who are in a poor psychological disposition have worse postoperative recovery and a higher rate of postoperative complications. For these reasons, psychological support is an important part of prehabilitation interventions [36–38]. There are several studies available on psychological prehabilitation and the results are manifold. None of the studies have shown a significant effect on improving the psychological state of the patient. Nevertheless, patients' perception of postoperative pain decreased after psychological intervention. Patients gained independence faster, and this significantly reduced the length of postoperative hospitalization [5,20,38,39]. Psychological support also increased patients' motivation and compliance with nutritional and physical rehabilitation [40]. To assess the psychological well-being of the patient, the Hospital Anxiety and Depression Scale (HADS) is most commonly used. This questionnaire evaluates the level of depression and anxiety in a specific group of patients with somatic illness [38,41]. Psychological intervention techniques were

heterogeneous across studies. These included relaxation and breathing exercises, mindfulness programmes, psychological interviews as well as psychiatric medication [3,5,20,38,39].

Other modalities

Some studies and programmes extend trimodal prehabilitation with other complementary modalities such as aromatherapy, relaxation techniques, occupational therapy and addictology [4,42–47]. The results of psychosocial interventions such as occupational therapy, relaxation techniques, aromatherapy, and traditional Chinese medicine have shown improvements in patients' cognitive and psychological status [45]. Some studies also describe a reduction in postoperative pain [46]. Other studies have assessed the importance of smoking abstinence before surgery. However, this intervention did not improve the rate of perioperative complications or postoperative wound healing. This is probably because the effect did not develop in the limited time from the diagnosis of the disease to surgery [44,47].

The role of prehabilitation in oncogynaecology

There are several studies dealing with prehabilitation in gynaecological surgery and only a minority of them are devoted to oncogynaecology. Furthermore, these studies only focus on patients in the early stage of cancer. To the time of this review, no studies have been published on prehabilitation in patients with advanced oncogynaecological disease, although these patients would benefit most from prehabilitation [48–52]. The study by Carli et al. 2012 focuses on prehabilitation in frail patients with early endometrial cancer undergoing robotic-assisted hysterectomy. It is a 3-week bimodal program that patients undergo from home with good results in terms of improved physical performance, cognitive function and overall functional capacity [49]. Further results are reported by the prospective, multicentre, randomised Hawkes 2014 study, which investigated the effect of prehabilitation on obese patients with early endometrial cancer. This program focused on weight loss and antihormonal therapy in these patients [51]. Several studies on multimodal prehabilitation in oncogynaecological patients are ongoing and we'll just have to wait for their results. However, from the available literature and from other onco-surgical disciplines, there is already a strong assumption that prehabilitation in oncogynaecology is likely to have great potential. Although protocols and procedures in prehabilitation vary considerably and are inconsistent, they show improvements in physical, nutritional and psychological parameters [3,52]. Oncogynaecological diseases include a heterogeneous group of tumours and patients, therefore it is important to individualize prehabilitation programmes in terms of length, type, intensity and individual modalities [3,52].

Prehabilitation and ERAS protocol

In the postoperative period, prehabilitation is logically followed by ERAS, a set of perioperative and postoperative interventions that leads to minimization of the postoperative stress response. The combination of prehabilitation and ERAS protocol offers an ideal combination of two complementary programmes to improve the quality of care for patients with extensive cancer. The predicted outcome of the combination of these approaches is minimization of postoperative complications, shortening of postoperative hospitalization time, improvement of quality of life after surgery and reduction of treatment costs. Unfortunately, no data are yet available from the combination of prehabilitation and ERAS programmes [3,13,35,52].

Conclusion and summary

Prehabilitation is an ambitious set of interventions aimed at improving the functional capacity of patients prior to elective surgery. It is already widely used in the present day and is expected to become the standard of care for frail patients in the future. The positive effect of preoperative preparation on reducing postoperative recovery time is clearly demonstrated. Multimodal programmes consisting of physical activity, nutritional rehabilitation and psychological support have been shown to have better results than individual modalities separately. The combination of pre-operative prehabilitation with a peri- and post-operative ERAS programme seems to be optimal. However, the necessary published data on this combination of modalities are not yet available. As the time window between diagnosis and operative management is limited, it is essential to clearly define and individualize the prehabilitation programme according to the needs of each patient in order to be as effective as possible.

References

1. Gillis C, Carli F. Promoting perioperative metabolic and nutritional care. Anesthesiology 2015; 123(6): 1455–1472. doi: 10.1097/ALN.0000000000000795.
2. Kojima G, Iliffe S, Walters K. Frailty index as a predictor of mortality: a systematic review and meta-analysis. Age Ageing 2018; 47(2): 193–200. doi: 10.1093/ageing/afx162.
3. Miralpeix E, Mancebo G, Gayete S et al. Role and impact of multimodal prehabilitation for gynecologic oncology patients in an Enhanced Recovery After Surgery (ERAS) program. Int J Gynecol Cancer 2019; 29(8): 1235–1243. doi: 10.1136/ijgc-2019-000597.
4. Zgâia A, Pop F, Achimaş-Cadariu P et al. The impact of relaxation technique and pre-operative psychological counselling on pain, analgesic consumption and psychological symptoms on patients scheduled for breast cancer surgery – a randomized clinical study. J Evid Based Psychother 2016; 16(2): 205–220.
5. Li C, Carli F, Lee L et al. Impact of a trimodal prehabilitation program on functional recovery after colorectal cancer surgery: a pilot study. Surg Endosc 2013; 27(4): 1072–1082. doi: 10.1007/s00464-012-2560-5.
6. Minnella EM, Bousquet-Dion G, Awasthi R et al. Multimodal prehabilitation improves functional capacity before and after colorectal surgery for cancer: a five-year research ex-

perience. Acta Oncol 2017; 56(2): 295–300. doi: 10.1080/0284186X.2016.1268268.
7. Kabata P, Jastrzębski T, Kąkol M et al. Preoperative nutritional support in cancer patients with no clinical signs of malnutrition – prospective randomized controlled trial. Support Care Cancer 2015; 23(2): 365–370. doi: 10.1007/s00520-014-2363-4.
8. Carli F, Charlebois P, Stein B et al. Randomized clinical trial of prehabilitation in colorectal surgery. Br J Surg 2010; 97(8): 1187–1197. doi: 10.1002/bjs.7102.
9. Rashami A. Multimodal prehabilitation in patients undergoing colorectal cancer resection: the impact of supervised structured perioperative exercise on postoperative functional capacity. Canada: Montréal, Québec: Diss. Concordia University 2016.
10. Pele B, Amoako D. Prehabilitation. BJA Education 2017; 17.12: 401–405.
11. PREHABILITATION, rehabilitation, and revocation in the Army. Br Med J 1946; 1: 192–197.
12. NIH. National Library of Medicine. 2024 [online]. Available from: clinicaltrials.gov.
13. Gillis C, Ljungqvist O, Carli F. Corrigendum to 'Prehabilitation, enhanced recovery after surgery, or both? A narrative review' (Br J Anaesth 2022; 128: 434–448). Br J Anaesth 2022; 128(6): 1061. doi: 10.1016/j.bja.2022.03.001.
14. Dronkers JJ, Chorus AM, van Meeteren NL et al. The association of pre-operative physical fitness and physical activity with outcome after scheduled major abdominal surgery. Anaesthesia 2013; 68(1): 67–73. doi: 10.1111/anae.12066.
15. Moran J, Guinan E, McCormick P et al. The ability of prehabilitation to influence postoperative outcome after intra-abdominal operation: a systematic review and meta-analysis. Surgery 2016; 160(5): 1189–1201. doi: 10.1016/j.surg.2016.05.014.
16. Michael CM, Lehrer EJ, Schmitz KH et al. Prehabilitation exercise therapy for cancer: a systematic review and meta-analysis. Cancer Med 2021; 10(13): 4195–4205. doi: 10.1002/cam4.4021.
17. Toohey K, Hunter M, McKinnon K et al. A systematic review of multimodal prehabilitation in breast cancer. Breast Cancer Res Treat 2023; 197(1): 1–37. doi: 10.1007/s10549-022-06759-1.
18. Sinclair RC, Batterham AM, Davies S et al. Validity of the 6 min walk test in prediction of the anaerobic threshold before major non-cardiac surgery. Br J Anaesth 2012; 108(1): 30–35. doi: 10.1093/bja/aer322.
19. Soares SM, Nucci LB, da Silva MM et al. Pulmonary function and physical performance outcomes with preoperative physical therapy in upper abdominal surgery: a randomized controlled trial. Clin Rehabil 2013; 27(7): 616–627. doi: 10.1177/0269215512471063.
20. Barberan-Garcia A, Ubré M, Roca J et al. Personalised prehabilitation in high-risk patients undergoing elective major abdominal surgery: a randomized blinded controlled trial. Ann Surg 2018; 267(1): 50–56. doi: 10.1097/SLA.0000000000002293.
21. Burke SM, Brunet J, Sabiston CM et al. Patients' perceptions of quality of life during active treatment for locally advanced rectal cancer: the importance of preoperative exercise. Support Care Cancer 2013; 21(12): 3345–3353. doi: 10.1007/s00520-013-1908-2.
22. Lee L, Schwartzman K, Carli F et al. The association of the distance walked in 6 min with pre-operative peak oxygen consumption and complications 1 month after colorectal resection. Anaesthesia 2013; 68(8): 811–816. doi: 10.1111/anae.12329.
23. Keeratichananont W, Thanadetsuntorn C, Keeratichananont S. Value of preoperative 6-minute walk test for predicting postoperative pulmonary complications. Ther Adv Respir Dis 2016; 10(1): 18–25. doi: 10.1177/17534658156 15509.
24. Rasekaba T, Lee AL, Naughton MT et al. The six-minute walk test: a useful metric for the cardiopulmonary patient. Intern Med J 2009; 39(8): 495–501. doi: 10.1111/j.1445-5994.2008.01880.x.
25. Marjanski T, Badocha M, Wnuk D et al. Result of the 6-min walk test is an independent prognostic factor of surgically treated non-small-cell lung cancer. Interact Cardiovasc Thorac Surg 2019; 28(3): 368–374. doi: 10.1093/icvts/ivy258.
26. Alaparthi GK, Augustine AJ, Anand R et al. Comparison of diaphragmatic breathing exercise, volume and flow incentive spirometry, on diaphragm excursion and pulmonary function in patients undergoing laparoscopic surgery: a randomized controlled trial. Minim Invasive Surg 2016; 2016: 1967532. doi: 10.1155/2016/1967532.
27. Sato F, Ishida T, Ohuchi N. The perioperative educational program for improving upper arm dysfunction in patients with breast cancer: a controlled trial. Tohoku J Exp Med 2014; 232(2): 115–122. doi: 10.1620/tjem.232.115.
28. Evans DC, Martindale RG, Kiraly LN et al. Nutrition optimization prior to surgery. Nutr Clin Pract 2014; 29(1): 10–21. doi: 10.1177/0884533613517006.
29. Ryan AM, Power DG, Daly L et al. Cancer-associated malnutrition, cachexia and sarcopenia: the skeleton in the hospital closet 40 years later. Proc Nutr Soc 2016; 75(2): 199–211. doi: 10.1017/S002966511500419X.
30. Jie B, Jiang ZM, Nolan MT et al. Impact of preoperative nutritional support on clinical outcome in abdominal surgical patients at nutritional risk. Nutrition 2012; 28(10): 1022–1027. doi: 10.1016/j.nut.2012.01.017.
31. Skipper A, Ferguson M, Thompson K et al. Nutrition screening tools: an analysis of the evidence. JPEN J Parenter Enteral Nutr 2012; 36(3): 292–298. doi: 10.1177/0148607111414023.
32. Gillis C, Wischmeyer PE. Pre-operative nutrition and the elective surgical patient: why, how and what? Anaesthesia 2019; 74 Suppl 1: 27–35. doi: 10.1111/anae.14506.
33. Ryan AM, Power DG, Daly L et al. Cancer-associated malnutrition, cachexia and sarcopenia: the skeleton in the hospital closet 40 years later. Proc Nutr Soc 2016; 75(2): 199–211. doi: 10.1017/S002966511500419X.
34. Burd NA, Yang Y, Moore DR et al. Greater stimulation of myofibrillar protein synthesis with ingestion of whey protein isolate v. micellar casein at rest and after resistance exercise in elderly men. Br J Nutr 2012; 108(6): 958–962. doi: 10.1017/S0007114511006271.
35. Nelson G, Bakkum-Gamez J, Kalogera E et al. Guidelines for perioperative care in gynecologic/oncology: Enhanced Recovery After Surgery (ERAS) Society recommendations – 2019 update. Int J Gynecol Cancer 2019; 29(4): 651–668. doi: 10.1136/ijgc-2019-000356.
36. Mavros MN, Athanasiou S, Gkegkes ID et al. Do psychological variables affect early surgical recovery? PLoS One 2011; 6(5): e20306. doi: 10.1371/journal.pone.0020306.
37. Ho PM, Masoudi FA, Spertus JA et al. Depression predicts mortality following cardiac valve surgery. Ann Thorac Surg 2005; 79(4): 1255–1259. doi: 10.1016/j.athoracsur.2004.09.047.
38. Powell R, Scott NW, Manyande A et al. Psychological preparation and postoperative outcomes for adults undergoing surgery under general anaesthesia. Cochrane Database Syst Rev 2016; 2016(5): CD008646. doi: 10.1002/14651858.CD008646.pub2.
39. Gillis C, Li C, Lee L et al. Prehabilitation versus rehabilitation: a randomized control trial in patients undergoing colorectal resection for cancer. Anesthesiology 2014; 121(5): 937–947. doi: 10.1097/ALN.0000000000000393.
40. Rimer J, Dwan K, Lawlor DA et al. Exercise for depression. Cochrane Database Syst Rev 2012; 7: CD004366. doi: 10.1002/14651858.CD004366.pub5.
41. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand 1983; 67(6): 361–370. doi: 10.1111/j.1600-0447.1983.tb09716.x.
42. Larson MR, Duberstein PR, Talbot NL et al. A presurgical psychosocial intervention for breast cancer patients. psychological distress and the immune response. J Psychosom Res 2000; 48(2): 187–194. doi: 10.1016/s0022-3999(99)00110-5.
43. Tamaki K, Fukuyama AK, Terukina S et al. Randomized trial of aromatherapy versus conventional care for breast cancer patients during perioperative periods. Breast Cancer Res Treat 2017; 162(3): 523–531. doi: 10.1007/s10549-017-4134-7.
44. Thomsen T, Tønnesen H, Okholm M et al. Brief smoking cessation intervention in relation to breast cancer surgery: a randomized controlled trial. Nicotine Tob Res 2010; 12(11): 1118–1124. doi: 10.1093/ntr/ntq158.
45. Knoerl R, Giobbie-Hurder A, Sannes TS et al. Exploring the impact of exercise and mind-body prehabilitation interventions on phys-

ical and psychological outcomes in women undergoing breast cancer surgery. Support Care Cancer 2022; 30(3): 2027–2036. doi: 10.1007/s00520-021-06617-8.
46. Tian C, Wu L, Chen H et al. Comprehensive nursing reduces psychological pressure and improves the quality of life of breast cancer patients during the perioperative period. Int J Clin Exp Med 2020; 13(6): 3833–3840.
47. Thomsen T, Esbensen BA, Samuelsen S et al. Brief preoperative smoking cessation counselling in relation to breast cancer surgery: a qualitative study. Eur J Oncol Nurs 2009; 13(5): 344–349. doi: 10.1016/j.ejon.2009.04.006.
48. Ebner F, Schulz SV, de Gregorio A et al. Prehabilitation in gynecological surgery? What do gynecologists know and need to know. Arch Gynecol Obstet 2018; 297(1): 27–31. doi: 10.1007/s00404-017-4565-8.
49. Carli F, Brown R, Kennepohl S. Prehabilitation to enhance postoperative recovery for an octogenarian following robotic-assisted hysterectomy with endometrial cancer. Can J Anaesth 2012; 59(8): 779–784. doi: 10.1007/s12630-012-9734-4.
50. Noordegraaf AV, Anema JR, van Mechelen W et al. A personalised eHealth programme reduces the duration until return to work after gynaecological surgery: results of a multicentre randomised trial. BJOG 2014; 121(9): 1127–1136. doi: 10.1111/1471-0528.12661.
51. Hawkes AL, Quinn M, Gebski V et al. Improving treatment for obese women with early stage cancer of the uterus: rationale and design of the levonorgestrel intrauterine device ± metformin ± weight loss in endometrial cancer (feMME) trial. Contemp Clin Trials 2014; 39(1): 14–21. doi: 10.1016/j.cct.2014.06.014.
52. Schneider S, Armbrust R, Spies C et al. Prehabilitation programs and ERAS protocols in gynecological oncology: a comprehensive review. Arch Gynecol Obstet 2020; 301(2): 315–326. doi: 10.1007/s00404-019-05321-7.

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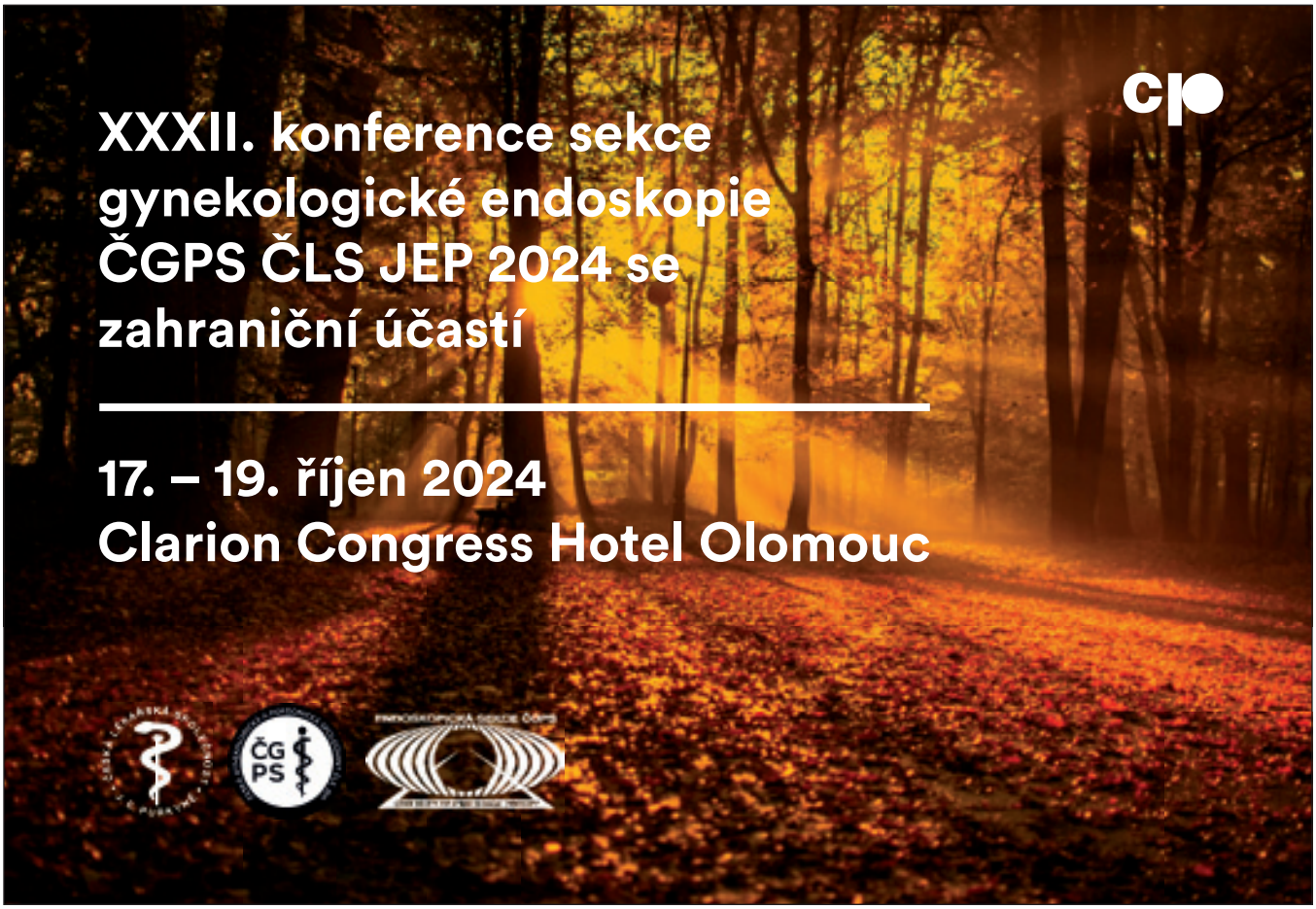

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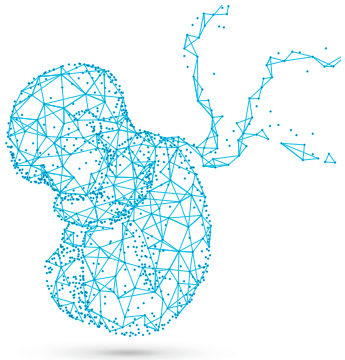

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