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AIMS AND SCOPE

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RESPONSIBLE EDITORS FOR THIS ISSUE

ORIGINAL ARTICLE

Case Control Study

Application of positive behavior management in patients after breast cancer surgery

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Abstract

BACKGROUND
As a radical treatment, breast cancer surgery has a positive psychological impact on most patients. However, some patients do not have a clear understanding of the disease, which requires a more scientific and comprehensive consideration during clinical intervention and are based on cognition. The positive behavior management model is based on this kind of background-derived new interventions, which can better serve the clinical rehabilitation process of patients. The positive behavior management model based on cognitive architecture is a new type of intervention derived from this background, which can better serve the clinical rehabilitation process of patients.

AIM
To analyze the influence of a positive behavior management model based on cognitive framework on the degree of hope and self-efficacy of patients with breast cancer surgery.

METHODS
Eighty-four patients with breast cancer who underwent surgical treatment in our hospital from August 2016 to December 2018 were included in the study. The patients were divided into the experimental group (n = 42) and control group (n = 42) by random number table grouping. The control group received traditional nursing intervention, while the experimental group received a positive behavior management model based on cognitive framework based on the traditional intervention of the control group. General Self-efficacy Scale, Herth Hope Scale, Self-Rating Anxiety Scale, Self-Rating Depression Scale and Cancer Patient Specific Scale were used to evaluate the two groups before and 1 wk after

intervention.

RESULTS

After the intervention, self-efficacy and hope level of the experimental group were significantly higher than those of the control group ($P < 0.05$). The Self-Rating Anxiety Scale and Self-Rating Depression Scale scores in the experimental group were significantly lower than those in the control group ($P < 0.05$). There was no significant difference in the quality of life scores between the two groups before intervention ($P > 0.05$). The quality of life scores in all aspects in the experimental group after intervention were significantly higher than those in the control group ($P < 0.05$).

CONCLUSION

The positive behavior management model based on cognitive framework applied to patients with breast cancer surgery improved hope for treatment and self-efficacy, reduced negative emotion, and improved quality of life.

Key words: Breast cancer; Cognitive intervention; Degree of hope; Self-efficacy; Negative emotions; Quality of life

Core tip: Breast cancer is a common malignant cancer, with a short estimated survival time. With the popularization of physical examination in China, the detection rate of breast cancer has increased annually, which has caused concern to medical personnel. The positive behavior management model based on cognitive framework applies to patients with breast cancer surgery with improved hope for treatment and self-efficacy. It uses multidimensional nursing methods to reverse the patient's past misconceptions, thereby achieving physical and mental comfort and providing preconditions for the disease to return in a benign direction, ensuring that patients are integrated and ultimately improving quality of life.

INTRODUCTION

Breast cancer is a common malignant cancer. The estimated survival time of patients is short, and the average survival time is only 5–19 mo[1]. In recent years, with the popularization of physical examination in China, the detection rate of breast cancer has increased annually, which has caused concern to medical personnel. Breast cancer patients have an uncomfortable cognitive experience after knowing that they have a tumor, which has an adverse effect on their quality of life[2]. Positive behavior management usually refers to the subjective judgment of the individual's current behavioral organization and execution toward the intended goal, that is, the self-confidence of the individual's behavior management ability[3]. The higher the patient's awareness of the disease, the stronger their ability to manage positive behavior. If the patients can adopt autonomous behaviors in the subconsciousness, they may work harder on disease management[4]. The positive behavior management model based on cognitive framework intervenes in behavior and emotions that affect patient cognition, and uses multidimensional nursing methods to reverse the patient's past misconceptions, thereby achieving physical and mental comfort, and providing preconditions for the disease to return in a benign direction[5]. In terms of improving patient cognitive reserve, traditional interventions only focus on oral health education, and do not guide patients to manage their own behavior, so the intervention is less effective, and patients' behavior cannot achieve the expected results[6].

The aim of the present study was to introduce behavioral interventions to improve

traditional interventions in order to manage the patients' psychological and behavioral aspects together, to ensure that patients are integrated and to improve their hope for treatment and self-management, and ultimately improve quality of life[7]. The study started from the perspective of random intervention and validated the clinical effects achieved by the intervention through collecting data from observational projects.

MATERIALS AND METHODS

Patients
Eighty-four patients with breast cancer who underwent surgery in our hospital from August 2016 to December 2018 were included in the study. The patients were divided into an experimental group (*n* = 42) and control group (*n* = 42) by random number table grouping.

Inclusion criteria: (1) Patients were diagnosed with breast cancer for the first time, by pathological biopsy, and the diagnosis was based on the diagnostic criteria for breast cancer developed by the International Association for the Prevention of Cancer. (2) Patients had a clear sense of consciousness and had the ability to communicate with others, and could independently complete the evaluation of the scale and questionnaire. (3) Patients' heart, kidney and brain and other substantial organs functioned well. (4) Patients' case data were complete. (5) Patients were accompanied by at least one immediate family member. (6) Patients had an estimated survival time of > 6 mo. And (7) Patients understood the content of the study and gave signed informed consent.

Exclusion criteria: (1) Patients had poor communication levels or barriers to understanding. (2) Patients had a primary mental illness or a family mental illness. (3) Patients were unaware or had not been informed of their condition/diagnosis. (4) Patients had concomitant malignant tumors in other areas. (5) Patients had alcohol or drug dependence. And (6) Patients were resistant to the study.

The study was reviewed and approved by the hospital ethics committee. There was no significant difference in the basic data between the two groups of patients (*P* > 0.05, Table 1).

Control group
The control group received traditional nursing interventions. Nurses carried out the following tasks: Provided knowledge of breast cancer occurrence, development, prognosis and outcome to the patients; answer the patients' questions and calmed the patients' emotions; informed the patients of each pertinent care and let the patients cooperate with the nursing care; introduced the patients to the attending physician, familiarized the patients with the ward environment, adjusted the temperature and humidity of the ward according to the patients' comfort perception; and informed the patients about the pharmacological mechanism of any drugs and possible adverse reactions.

Experimental group
The patients in the experimental group received a positive behavior management model based on cognitive framework based on the traditional intervention of the control group.

Reshape the cognitive system
Mental health guidance strategies were used to guide patients to gradually adopt the correct cognitive approach, allowing patients to gain a new perspective to examine themselves and their surroundings. After determining the research objectives, an appropriate time and place were selected to let the patients express their inner feelings, letting them vent their inner anxiety and depression, and then improve their self-image. The patients were made aware of their family responsibilities and the medical costs of their treatment. We let the patients express any fears that may occur in future social activities, corrected any misconceptions that the patients may have had from a psychological perspective, and helped them cope with their disease with a positive state of mind. We helped the patients to accept follow-up treatment and reversed any negative lifestyle. At the end of the intervention, the patients were given paper and pen to record anything from the conversation. For patients who had difficulty writing, they were able to record their thoughts on a mobile phone. The intervention lasted for 20 min, and was conducted every day from 08:00 to 09:00 h, and once a day for 2 wk.

Table 1 Basic patient data

Item	Experimental group	Control group	Statistics	*P* value
Gender				
Male	20	19	0.368	> 0.05
Female	22	23		
Age (yr)	63.5 ± 4.1	63.8 ± 4.2	0.987	> 0.05
Education				
Junior high and below	10	11	0.785	> 0.05
High school	8	7		
College	13	12		
Bachelor and above	11	12		
Pathology				
Noninvasive	12	10	1.236	> 0.05
Early invasive	8	10		
Invasive special	22	22		
Clinical stage				
Phase I	8	10	0.910	> 0.05
Phase II	12	11		
Phase III	10	10		
Phase IV	12	11		
Income (RMB Yuan)				
< 3000	12	11	0.368	> 0.05
3000–5000	10	9		
> 5001	20	22		

Health-related cognitive structure

Every day from 14:00 to 16:00 h, oral presentation, hand-drawn animation and video review were used alternatively according to the patients' education level to teach them about the impact of social support, emotional status and coping behavior on physical and mental health status, in order to improve the patients' response to disease, and encourage family members to participate in disease management. The time for the nurses' involvement in the above three topics was restricted to 30 min, and the time spent on each topic was about 10 min. When the teaching was completed, the nurses asked the patients to objectively present the knowledge points in the form of mind map (picture combined with text), and the time was restricted to 30 min. After that, the nurse gave the patients a situational topic. You have many friends and family, how do they provide you with social support? What changes have occurred in your emotional state after receiving social support? Can you talk more about what kind of behavior you will adopt when dealing with the disease? These situational topics served as patients' homework. The nurses asked the patients to think before going to sleep, and then answer the above three questions by mobile phone recording. From 07:00 to 08:00 h in the next morning, the nurses checked the patients' responses and gave them encouragement to strengthen their self-confidence and courage to overcome the disease. The intervention time was limited to 90 min and took place once a day for 2 wk.

Physical and mental relaxation cognitive intervention

During the rest time each day (12:30 to 13:00 h), the patients were instructed to take a comfortable supine position, close their eyes, relax their body and mind. The intervention time was restricted to 15 min. Then, the patients were allowed to listen to some soothing music to relieve their anxiety and depression. During listening to the music, the nurses slowly told the patients about breast cancer, each sentence separated by 5 s, until all the health education content was finished. The intervention time was restricted to 10 min, and the intervention was performed once a day for 2 wk.

Family members' participation in cognitive management

From 20:00 to 21:00 h, the nursed treated the patients and their immediate family as a common intervention group. The nurse used the relevant knowledge of the patient as the specific situation, and allowed the patients and their family to participate in role

playing of the real situation. The specific situation involved the following: What kind of cooperative behavior should patients and their families jointly adopt during the perioperative period of breast cancer? The nurses used a mobile phone to record the role playing. The situation was limited to 30 min. The nurses recorded the strong points and deficiencies of the patients and their families, and then commented on both aspects, thus enhancing the awareness and understanding of the relevant cognitive content. The intervention time was restricted to 30 min, and the intervention was performed once a day for 2 wk.

Evaluation indicators

Self-efficacy: The self-efficacy of the two groups of patients before and 1 wk after the intervention was assessed using the General Self-Efficacy Scale (GSES). GSES was developed in 1994 by Professor Ralf Schwarzer, a renowned clinical and health psychologist at the Free University of Berlin, Germany. The scale involves 10 items, with a 4-level scale (1–4 points) with a total score of 10–40 points. The higher the score, the higher the self-efficacy. If the score is between 1 and 10, it means that the patient's self-confidence is low; if the score is 11–20, self-confidence is relatively low; if the score is 21–30, self-confidence is higher; if the score is 31–40 points, self-confidence is very high. The scale had a Cronbach's α of 0.813, structural reliability of 0.793, and retest validity of 0.815.

Degree of hope: The Herth Hope Scale was used to assess the degree of hope of the two groups of patients before and 1 wk after the intervention. The Herth Hope Scale was compiled in 1992 by American scholar Herth based on Dufauft's concept of hope. The scale involves 12 items, including three dimensions (4 items in each dimension), which are "positive attitudes towards the present and the future", "practicing positive actions" and "keeping close relationships with others". The scale is given a four-level score (1–4 points), with a total of 4–16 points for each dimension. The higher the score, the higher the level of hope that the disease will be cured. The scale had a Cronbach's α of 0.806, structural reliability of 0.804, and retest validity of 0.811.

Negative emotions: The negative emotions of the two groups of patients before and 1 wk after the intervention were evaluated using the Self-Rating Anxiety Scale (SAS) and Self-Rating Depression Scale (SDS) compiled by Zung in 1978. Evaluation criteria for the two scales were: Score 50–59, mild anxiety/depression; score 60–69, moderate anxiety/depression; score > 70, severe anxiety/depression. The Cronbach's α of the SAS scale was 0.817, structural reliability was 0.796, and retest validity was 0.803; Cronbach's α of the SDS scale was 0.832, structural reliability was 0.799, and retest validity was 0.814.

Quality of life: The quality of life of the two groups of patients before and 1 wk after the intervention was assessed using a breast cancer patient-specific scale. The scale was developed by the European Quality of Life Collaboration in 2000 and is based on the Cancer Core Scale EORTCQLQ-30. The scale includes five dimensions, each of which has a score of 0–100. The higher the score, the higher the quality of life. The scale had a Cronbach's α of 0.817, structural reliability of 0.792, and retest validity of 0.804.

Statistical analysis

The data were analyzed using SPSS version 22.0 software. The variables data were analyzed by paired-samples *t*-test; the attributes data were analyzed by χ^2 test; and the ranked data were analyzed by Wilcoxon rank sum test. $P < 0.05$ indicated that the difference was statistically significant.

RESULTS

Comparison of self-efficacy between the two groups before and after intervention
The self-efficacy of the experimental group was significantly higher than that of the control group ($P < 0.05$, Table 2).

Comparison of the degree of hope before and after intervention in the two groups of patients
The hope level of the experimental group was significantly higher than that of the control group ($P < 0.05$, Table 3).

Comparison of negative emotional scores before and after intervention in the two groups of patients

Table 2 Self-efficacy before and after intervention in the two groups of patients (cases)

Group	Cases	Self confidence before intervention				Self confidence after intervention			
		Low	Relatively low	Relatively high	Very high	Low	Relatively low	Relatively high	Very high
Experiment	42	15	13	8	6	3	8	17	14
Control	42	17	12	8	5	7	18	10	7
Statistics	-	0.672				17.821			
P value	-	> 0.05				< 0.05			

The SAS and SDS scores of the experimental group were significantly lower than those of the control group ($P < 0.05$, Table 4).

Comparison of quality of life between the two groups before and after intervention
After the intervention, the quality of life scores of the experimental group were significantly higher than those of the control group ($P < 0.05$, Table 5 and Table 6).

DISCUSSION

Self-efficacy has some influence on the behavior of breast cancer patients, and urges individuals to consciously choose either a positive or negative lifestyle, and has a decisive influence on the duration of the two possible lifestyles[8-10]. The stronger the self-efficacy of a breast cancer patient, the stronger they are in making an effort, and the more they can adhere to positive behaviors[11-13]. When an individual encounters difficulties, some patients may have doubts about their response to the difficulties and diseases, so they may relax their efforts or face them in a lazy manner. However, for breast cancer patients with strong self-efficacy, they will face challenges through greater efforts[14-16]. Cancer is a negative event and a major test for patients. Therefore, using multidimensional interventions to improve patients' self-efficacy has important practical value for their prognosis[17,18]. According to the self-efficacy theory of psychology, the individual's self-efficacy is related to the power of the model, the experience of past success and failure, the level of inner positive emotion arousal, and speech comfort[19,20].

The positive behavior management model based on cognitive framework introduced in this study is a comprehensive management model, which aims to mobilize the inner positive power of patients from a multidimensional perspective, thus affecting their self-efficacy[21,22]. First, through step-by-step health education and contextual play, breast cancer patients have a general awareness of the disease, thereby strengthening their self-care level and improving their self-confidence to overcome the disease[23,24]. Furthermore, with the help of whole body muscle relaxation training, the patients release the negative effects on the body, thereby mobilizing their subconscious mind to counter the physical discomfort. In addition, self-care behavior is monitored in the form of study notes to improve cognitive level and intrinsic motivation on a realistic level. In addition, some breast cancer patients have negative emotions such as anxiety and depression because they are worried about their self-care outside the hospital[25]. In this study, we used a physical and mental relaxation cognitive intervention to allow patients to memorize and digest relevant health knowledge while they were both physically and mentally relaxed, thus forming a virtuous circle[26]. It has been reported[27] that when individuals are physically and mentally relaxed, they can promote synthesis and secretion of "happy hormones" such as dopamine, which enable individuals to make synaptic connections to new knowledge and strengthen the individuals' memory of the corresponding knowledge. As the patients gradually reshape their knowledge about breast cancer, it can further strengthen the individuals' hope for disease treatment, thus controlling their own behavior, which will help their condition to improve in a positive direction. Finally, the introduction of family members' participatory cognitive management enables patients to obtain greater social support, which has a positive effect on individuals' positive emotional experience. The results of our study also showed that the anxiety and depression scores of patients in the experimental group were lower than those in the control group, which indicates that maintaining a better sense of self-efficacy has a positive effect on the individuals' positive emotional experience. In addition, family-based cognitive management is a concrete presentation of social support, which can in turn promote patients' self-efficacy and thus achieve a

Table 3 Level of hope before and after intervention in the two groups of patients (points)

Group	Cases	Before intervention			After intervention		
		A	B	C	A	B	C
Experiment	42	7.3 ± 1.8	8.1 ± 2.0	7.6 ± 1.9	15.0 ± 2.4	14.5 ± 2.9	14.8 ± 2.2
Control	42	7.4 ± 1.9	8.0 ± 1.9	7.4 ± 1.8	8.7 ± 2.3	10.4 ± 2.6	9.5 ± 2.0
Statistics	-	0.901	1.027	0.674	15.272	16.268	13.232
P value	-	> 0.05	> 0.05	> 0.05	< 0.05	< 0.05	< 0.05

A: Positive attitude towards the present and future; B: Practicing positive action; C: Keeping close relationships with others.

continuous cycle of positive effects[28].

Our study also compared the hope levels of the two groups of patients. The scores of "positive attitudes towards the present and the future", "practicing positive actions" and "keeping close relationships with others" in the experimental group after intervention were higher than in the control group, indicating that the positive behavior management model based on cognitive framework may improve the level of hope. As patients become more aware of the disease, it can help them face and manage the disease with a positive attitude, and produce correct expectations for disease outcomes and prognosis[29]. Interventions involving family members can also help patients gain emotional support. Since surgery will have a negative impact on the physiological and psychological state of breast cancer patients, it is more important to pay attention to the patients' hope level in clinical practice and help them establish self-confidence to overcome the disease. As the level of hope and self-efficacy of patients improves, it can alleviate their anxiety and depression, so that they can face the diagnosis and treatment in a better physical and mental state, which helps to improve personal quality of life[30]. In this study, the quality of life scores of the two groups were compared. The quality of life scores in the experimental group were higher than in the control group, which was consistent with the above analysis.

In conclusion, introduction of the positive behavior management model based on cognitive framework in patients with breast cancer surgery can enhance patients' self-efficacy and improve their hopes for disease treatment, as well as relieve their anxiety and depression, which in turn may improve their quality of life. The positive behavior management model is worthy of further promotion in the clinic.

Table 4 Negative emotion scores before and after intervention in the two groups (points)

Group	Cases	Before intervention		After intervention	
		SAS	SDS	SAS	SDS
Experiment	42	63.5 ± 4.1	62.7 ± 3.8	51.7 ± 2.2	52.8 ± 2.4
Control	42	63.7 ± 4.2	62.9 ± 3.9	59.8 ± 3.7	58.6 ± 3.7
Statistics	-	0.784	1.209	14.324	17.263
P value	-	> 0.05	> 0.05	< 0.05	< 0.05

SAS: Self-Rating Anxiety Scale; SDS: Self-Rating Depression Scale.

Table 5 Quality of life before intervention in the two groups of patients (cases)

Group	Cases	Physical function	Role function	Social function	Emotional function	Cognitive function
Experiment	42	68.3 ± 3.2	62.1 ± 2.9	64.5 ± 3.3	57.4 ± 2.7	60.2 ± 3.0
Control	42	68.5 ± 3.3	62.4 ± 3.0	64.7 ± 3.5	58.0 ± 3.0	60.4 ± 3.1
Statistics	-	0.899	1.027	0.931	0.764	0.883
P value	-	> 0.05	> 0.05	> 0.05	> 0.05	> 0.05

Table 6 Quality of life after intervention in two groups of patients (cases)

Group	Cases	Physical function	Role function	Social function	Emotional function	Cognitive function
Experiment	42	85.1 ± 4.4	88.4 ± 4.8	87.5 ± 4.9	83.2 ± 3.9	83.5 ± 4.5
Control	42	72.4 ± 3.6	73.2 ± 3.5	71.3 ± 4.0	68.7 ± 3.3	71.3 ± 3.4
Statistics	-	17.872	13.290	16.534	12.381	16.788
P value	-	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

ARTICLE HIGHLIGHTS

Research background

Although breast cancer surgery has a therapeutic effect, it has a greater psychological impact on patients, which is mainly reflected in the impact on patients' awareness of disease and self-efficacy. In order to better help patients improve their self-management effect, adopting a positive behavior management model based on cognitive architecture can effectively promote patients to cultivate a positive rehabilitation mentality, thereby promoting prognostic recovery.

Research motivation

The motivation of this study is to find a way to provide scientific and effective interventions to improve the overall rehabilitation effect of breast cancer patients, so as to promote the rapid recovery of patients and maintain their physical and mental health. The key issues to be addressed in this study are how to set up the corresponding interventions and how to determine that the interventions have the expected effect. Our article solves the above problems perfectly by formulating comprehensive intervention measures and developing objective evaluation indicators. In the future, more in-depth studies in this area should be conducted through cooperation with other medical institutions or by expanding the sample size and analyzing more detailed measurement indicators to obtain more representative conclusions.

Research objectives

The main objective of this study is to obtain the application effect data of the positive behavior management model based on cognitive architecture, and to verify its effectiveness and feasibility in clinical application. The goal that has been achieved is that the study has clearly identified that this intervention can strengthen the self-efficacy of breast cancer patients, increase their level of hope for disease treatment, and relieve their anxiety and depression, thereby improving the quality of life of individuals. This also points out the direction for future research, which can be studied in more depth or expansion, so as to achieve a wider coverage.

Research methods

The research method is mainly to implement different intervention measures for the two groups, focusing on the analysis of the role of the positive behavior management model based on

cognitive architecture. The General Self-Efficacy Scale was used to evaluate self-efficacy, the Herth Hope Scale was used to evaluate hope level, the Self-rating Anxiety Scale and Self-rating Depressive Scale were used to evaluate negative emotions, and the breast cancer patient-specific scale was used to evaluate the quality of life. The characteristic and novelty of this research method lies in the fact that through the analysis of scales in different aspects, we statistically and comprehensively verify the effect of the intervention measures of the observation group, in order to provide clinical guidance.

Research results
The result of this study is that the effect and application value of the positive behavior management model based on cognitive architecture have been confirmed, thus pointing out specific directions for future interventions. The contribution of the study to its field is that it can help the clinical establishment of specific items, operational specifications and evaluation indicators of the positive behavior management model based on cognitive architecture. However, there are also some related problems, such as the need to further refine the research indicators and the evaluation schemes.

Research conclusions
The new findings of the study are the affirmation of the role and value of the positive behavior management model based on cognitive architecture, which has taken a solid step for future clinical applications.

Research perspectives
The lessons learned from this study are that continuing in-depth research and investigation can provide more substantial content for the positive behavior management model based on cognitive architecture, enrich its specific connotation, and thus make it more representative. Future research directions are mainly to expand disease adaptation, refine management models, and enrich survey methods. The best method for future research is to invite other medical institutions to conduct collaborative research, and conduct it more scientifically in the aspects of samples, indications, and so on.

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REFERENCES

1   **Khazaee-Pool M**, Pashaei T, Alizadeh R, Ponnet K. New Educational Model to Promote Breast Cancer-Preventive Behaviors (ASSISTS): Development and First Evaluation. *Cancer Nurs* 2019; **42**: E44-E51 [PMID: 29334521 DOI: 10.1097/NCC.0000000000000560]

2   **Zhu J**, Ebert L, Liu X, Wei D, Chan SW. Mobile Breast Cancer e-Support Program for Chinese Women With Breast Cancer Undergoing Chemotherapy (Part 2): Multicenter Randomized Controlled Trial. *JMIR Mhealth Uhealth* 2018; **6**: e104 [PMID: 29712622 DOI: 10.2196/mhealth.9438]

3   **Zewenghiel L**, Lindman H, Valachis A. Impact of body mass index on the efficacy of endocrine therapy in patients with metastatic breast cancer - A retrospective two-center cohort study. *Breast* 2018; **40**: 136-140 [PMID: 29783185 DOI: 10.1016/j.breast.2018.05.005]

4   **Jiang Y**, Li J, Lin H, Huang Q, Wang T, Zhang S, Zhang Q, Rong Z, Xiong J. The efficacy of gabapentin in reducing pain intensity and morphine consumption after breast cancer surgery: A meta-analysis. *Medicine (Baltimore)* 2018; **97**: e11581 [PMID: 30235654 DOI: 10.1097/MD.0000000000011581]

5   **Ho CM**, Ho SL, Shun CT, Lee PH, Chen YH, Chien CS, Chen HL, Hu RH. Histopathological evidence for the existence of primary liver progenitor cell cancer: insight from cancer stem cell pathobiology. *Discov Med* 2017; **23**: 41-50 [PMID: 28245426]

6   **Powles TJ**, Paterson AHG. Unproven Efficacy of Low-Dose Bisphosphonates as a Means of Decreasing Bone Metastases and Death in Early Breast Cancer. *JAMA Oncol* 2018; **4**: 1477-1478 [PMID: 30054612 DOI: 10.1001/jamaoncol.2018.2674]

7   **Pedersen M**, Andersen ZJ, Stafoggia M, Weinmayr G, Galassi C, Sørensen M, Eriksen KT, Tjønneland A, Loft S, Jaensch A, Nagel G, Concin H, Tsai MY, Grioni S, Marcon A, Krogh V, Ricceri F, Sacerdote C, Ranzi A, Sokhi R, Vermeulen R, Hoogh K, Wang M, Beelen R, Vineis P, Brunekreef B, Hoek G, Raaschou-Nielsen O. Ambient air pollution and primary liver cancer incidence in four European cohorts within the ESCAPE project. *Environ Res* 2017; **154**: 226-233 [PMID: 28107740 DOI: 10.1016/j.envres.2017.01.006]

8   **Li Y**, Du Y, Sun T, Xue H, Jin Z, Tian J. PD-1 blockade in combination with zoledronic acid to enhance the antitumor efficacy in the breast cancer mouse model. *BMC Cancer* 2018; **18**: 669 [PMID: 29921237 DOI: 10.1186/s12885-018-4412-8]

9   **Global Burden of Disease Liver Cancer Collaboration**. Akinyemiju T, Abera S, Ahmed M, Alam N, Alemayohu MA, Allen C, Al-Raddadi R, Alvis-Guzman N, Amoako Y, Artaman A, Ayele TA, Barac A, Bensenor I, Berhane A, Bhutta Z, Castillo-Rivas J, Chitheer A, Choi JY, Cowie B, Dandona L, Dandona R, Dey S, Dicker D, Phuc H, Ekwueme DU, Zaki MS, Fischer F, Fürst T, Hancock J, Hay SI, Hotez P, Jee SH, Kasaeian A, Khader Y, Khang YH, Kumar A, Kutz M, Larson H, Lopez A, Lunevicius R, Malekzadeh R, McAlinden C, Meier T, Mendoza W, Mokdad A, Moradi-Lakeh M, Nagel G, Nguyen Q, Nguyen G, Ogbo F, Patton G, Pereira DM, Pourmalek F, Qorbani M, Radfar A, Roshandel G, Salomon JA, Sanabria J, Sartorius B, Satpathy M, Sawhney M, Sepanlou S, Shackelford K, Shore H, Sun J, Mengistu DT, Topór-Mądry R, Tran B, Ukwaja KN, Vlassov V, Vollset SE, Vos T, Wakayo T, Weiderpass E, Werdecker A, Yonemoto N, Younis M, Yu C, Zaidi Z, Zhu L, Murray CJL, Naghavi M,

Fitzmaurice C. The Burden of Primary Liver Cancer and Underlying Etiologies From 1990 to 2015 at the Global, Regional, and National Level: Results From the Global Burden of Disease Study 2015. *JAMA Oncol* 2017; **3**: 1683-1691 [PMID: 28983565 DOI: 10.1001/jamaoncol.2017.3055]

10   **Okazaki M**, Horimoto Y, Tanabe M, Ichikawa Y, Tokuda E, Arakawa A, Kobayashi T, Saito M. Predictive markers for efficacy of everolimus plus exemestane in patients with luminal HER2-negative metastatic breast cancer. *Med Oncol* 2018; **35**: 48 [PMID: 29520681 DOI: 10.1007/s12032-018-1112-9]

11   **Broutier L**, Mastrogiovanni G, Verstegen MM, Francies HE, Gavarró LM, Bradshaw CR, Allen GE, Arnes-Benito R, Sidorova O, Gaspersz MP, Georgakopoulos N, Koo BK, Dietmann S, Davies SE, Praseedom RK, Lieshout R, IJzermans JNM, Wigmore SJ, Saeb-Parsy K, Garnett MJ, van der Laan LJ, Huch M. Human primary liver cancer-derived organoid cultures for disease modeling and drug screening. *Nat Med* 2017; **23**: 1424-1435 [PMID: 29131160 DOI: 10.1038/nm.4438]

12   **Takashima T**, Kawajiri H, Nishimori T, Tei S, Nishimura S, Yamagata S, Tokunaga S, Mizuyama Y, Sunami T, Tezuka K, Ikeda K, Ogawa Y, Kashiwagi S, Noda S, Onoda N, Ishikawa T, Kudoh S, Takada M, Hirakawa K, Ohira M. Safety and Efficacy of Low-dose Nanoparticle Albumin-bound Paclitaxel for HER2-negative Metastatic Breast Cancer. *Anticancer Res* 2018; **38**: 379-383 [PMID: 29277798 DOI: 10.21873/anticanres.12233]

13   **Takabatake D**, Kajiwara Y, Ohtani S, Itano Y, Yamamoto M, Kubo S, Ikeda M, Takahashi M, Hara F, Aogi K, Ohsumi S, Ogasawara Y, Nishiyama Y, Hikino H, Matsuoka K, Takahashi Y, Shien T, Taira N, Doihara H. The efficacy and feasibility of dose-dense sequential chemotherapy for Japanese patients with breast cancer. *Breast Cancer* 2018; **25**: 717-722 [PMID: 29948957 DOI: 10.1007/s12282-018-0877-1]

14   **Masoudiyekta L**, Rezaei-Bayatiyani H, Dashtbozorgi B, Gheibizadeh M, Malehi AS, Moradi M. Effect of Education Based on Health Belief Model on the Behavior of Breast Cancer Screening in Women. *Asia Pac J Oncol Nurs* 2018; **5**: 114-120 [PMID: 29379843 DOI: 10.4103/apjon.apjon_36_17]

15   **Grégoire C**, Nicolas H, Bragard I, Delevallez F, Merckaert I, Razavi D, Waltregny D, Faymonville ME, Vanhaudenhuyse A. Efficacy of a hypnosis-based intervention to improve well-being during cancer: a comparison between prostate and breast cancer patients. *BMC Cancer* 2018; **18**: 677 [PMID: 29929493 DOI: 10.1186/s12885-018-4607-z]

16   **Yang X**, Pan Y, Qiu Z, Du Z, Zhang Y, Fa P, Gorityala S, Ma S, Li S, Chen C, Wang H, Xu Y, Yan C, Ruth K, Ma Z, Zhang J. RNF126 as a Biomarker of a Poor Prognosis in Invasive Breast Cancer and CHEK1 Inhibitor Efficacy in Breast Cancer Cells. *Clin Cancer Res* 2018; **24**: 1629-1643 [PMID: 29326282 DOI: 10.1158/1078-0432.CCR-17-2242]

17   **Bronte G**, Rocca A, Ravaioli S, Puccetti M, Tumedei MM, Scarpi E, Andreis D, Maltoni R, Sarti S, Cecconetto L, Fedeli A, Pietri E, De Simone V, Asioli S, Amadori D, Bravaccini S. Androgen receptor in advanced breast cancer: is it useful to predict the efficacy of anti-estrogen therapy? *BMC Cancer* 2018; **18**: 348 [PMID: 29587674 DOI: 10.1186/s12885-018-4239-3]

18   **Scott JM**, Iyengar NM, Nilsen TS, Michalski M, Thomas SM, Herndon J 2nd, Sasso J, Yu A, Chandarlapaty S, Dang CT, Comen EA, Dickler MN, Peppercorn JM, Jones LW. Feasibility, safety, and efficacy of aerobic training in pretreated patients with metastatic breast cancer: A randomized controlled trial. *Cancer* 2018; **124**: 2552-2560 [PMID: 29624641 DOI: 10.1002/cncr.31368]

19   **Li T**, Yang J, Lv Y, Yin F, Xu L, Liu H, Zheng Q, Li L. Quantitative comparison of drug efficacy in treating hot flashes in patients with breast cancer. *Breast Cancer Res Treat* 2019; **173**: 511-520 [PMID: 30390215 DOI: 10.1007/s10549-018-5029-y]

20   **Di Leo A**, O'Shaughnessy J, Sledge GW, Martin M, Lin Y, Frenzel M, Hardebeck MC, Smith IC, Llombart-Cussac A, Goetz MP, Johnston S. Prognostic characteristics in hormone receptor-positive advanced breast cancer and characterization of abemaciclib efficacy. *NPJ Breast Cancer* 2018; **4**: 41 [PMID: 30588487 DOI: 10.1038/s41523-018-0094-2]

21   **Neven P**, Jongen L, Lintermans A, Van Asten K, Blomme C, Lambrechts D, Poppe A, Wildiers H, Dieudonné AS, Brouckaert O, Decloedt J, Berteloot P, Verhoeven D, Joerger M, Vuylsteke P, Wynendaele W, Casteels M, Van Huffel S, Lybaert W, Van Ginderachter J, Paridaens R, Vergote I, Dezentjé VO, Van Calster B, Guchelaar HJ. Tamoxifen Metabolism and Efficacy in Breast Cancer: A Prospective Multicenter Trial. *Clin Cancer Res* 2018; **24**: 2312-2318 [PMID: 29459457 DOI: 10.1158/1078-0432.CCR-17-3028]

22   **Norimura S**, Kontani K, Kubo T, Hashimoto SI, Murazawa C, Kenzaki K, Liu D, Tamaki M, Aki F, Miura K, Yoshizawa K, Tangoku A, Yokomise H. Candidate biomarkers predictive of anthracycline and taxane efficacy against breast cancer. *J Cancer Res Ther* 2018; **14**: 409-415 [PMID: 29516929 DOI: 10.4103/jcrt.JCRT_1053_16]

23   **Ireland L**, Santos A, Campbell F, Figueiredo C, Hammond D, Ellies LG, Weyer-Czernilofsky U, Bogenrieder T, Schmid M, Mielgo A. Blockade of insulin-like growth factors increases efficacy of paclitaxel in metastatic breast cancer. *Oncogene* 2018; **37**: 2022-2036 [PMID: 29367764 DOI: 10.1038/s41388-017-0115-x]

24   **Yu G**, Zhang W, Zhu L, Xia L. Upregulated long non-coding RNAs demonstrate promising efficacy for breast cancer detection: a meta-analysis. *Onco Targets Ther* 2018; **11**: 1491-1499 [PMID: 29588602 DOI: 10.2147/OTT.S152241]

25   **Wang J**, Xu B, Wang W, Zhai X, Chen X. Efficacy and safety of fulvestrant in postmenopausal patients with hormone receptor-positive advanced breast cancer: a systematic literature review and meta-analysis. *Breast Cancer Res Treat* 2018; **171**: 535-544 [PMID: 29974356 DOI: 10.1007/s10549-018-4867-y]

26   **Wapnir IL**, Price KN, Anderson SJ, Robidoux A, Martín M, Nortier JWR, Paterson AHG, Rimawi MF, Láng I, Baena-Cañada JM, Thürlimann B, Mamounas EP, Geyer CE, Gelber S, Coates AS, Gelber RD, Rastogi P, Regan MM, Wolmark N, Aebi S; International Breast Cancer Study Group; NRG Oncology, GEICAM Spanish Breast Cancer Group, BOOG Dutch Breast Cancer Trialists' Group; Breast International Group. Efficacy of Chemotherapy for ER-Negative and ER-Positive Isolated Locoregional Recurrence of Breast Cancer: Final Analysis of the CALOR Trial. *J Clin Oncol* 2018; **36**: 1073-1079 [PMID: 29443653 DOI: 10.1200/JCO.2017.76.5719]

27   **Zhang Y**, Wang X, Chen T. Efficacy of Huaier granule in patients with breast cancer. *Clin Transl Oncol* 2019; **21**: 588-595 [PMID: 30276759 DOI: 10.1007/s12094-018-1959-4]

28   **Agrawal S**, Dwivedi M, Ahmad H, Chadchan SB, Arya A, Sikandar R, Kaushik S, Mitra K, Jha RK, Dwivedi AK. CD44 targeting hyaluronic acid coated lapatinib nanocrystals foster the efficacy against triple-negative breast cancer. *Nanomedicine* 2018; **14**: 327-337 [PMID: 29129754 DOI: 10.1016/j.nano.2017.10.010]

29   **Donnella HJ**, Webber JT, Levin RS, Camarda R, Momcilovic O, Bayani N, Shah KN, Korkola JE, Shokat KM, Goga A, Gordan JD, Bandyopadhyay S. Kinome rewiring reveals AURKA limits PI3K-pathway inhibitor efficacy in breast cancer. *Nat Chem Biol* 2018; **14**: 768-777 [PMID: 29942081 DOI:

10.1038/s41589-018-0081-9]

30   **Mansouri W**, Fordyce SB, Wu M, Jones D, Cohn D, Lin Q, Feustel P, Sharma T, Bennett JA, Andersen
      TT. Efficacy and tolerability of AFPep, a cyclic peptide with anti-breast cancer properties. *Toxicol Appl
      Pharmacol* 2018; **345**: 10-18 [PMID: 29518411 DOI: 10.1016/j.taap.2018.03.004]

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