

Background and Objectives

The deficit in cooperation among the individual medical sectors is a fundamental problem within the German health care system. Integrated care according to §§ 140 a ff. Social Code Book V offers a promising approach to improve the situation. In September 2003 the beta Institute implemented and evaluated "mammaNetz" – a multidisciplinary cross-sectoral health care model for women with breast cancer.

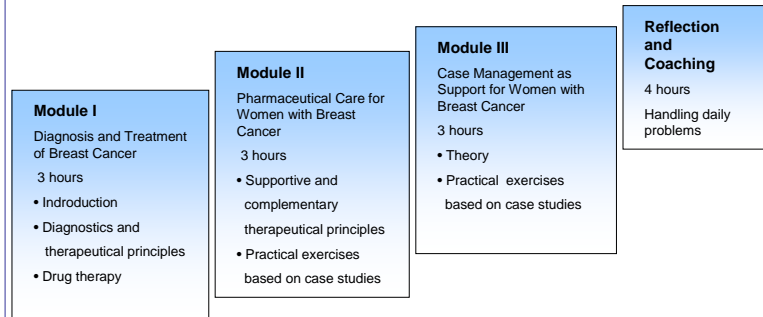
Since September 2005 community pharmacies (n=64) participate in order to enhance the integrated care concerning patients' compliance, quality of life and satisfaction as well as the reduction of adverse drug reactions.

The study was related to the integration of community pharmacies into the established network of mammaNetz as well as the development of a standardised training curriculum to support pharmacists providing pharmaceutical care for patients with breast cancer.

In the long run linking all involved partners of mammaNetz should prevent complications of breast cancer treatment and save costs in the health care system.

Training Curriculum

All networking pharmacies were given profound information on diagnosis and treatment of breast cancer, pharmaceutical care and case management based on a standardised training curriculum.



Setting

Outpatient gynaecological and oncological practices, hospital departments as well as networking pharmacists refer breast cancer patients to mammaNetz. A close cooperation with the case managers of mammaNetz, involved networking partners and patients' relatives is a mandatory part of the pharmaceutical care concept.

Main Outcome Measures

- Quality-of-Life – EORTC QLQ C30 v 3.0⁽¹⁾ questionnaire
- Patient satisfaction with information on cancer treatment – PS-CaTE⁽²⁾ questionnaire

Measures additionally developed for the study:

- Patient satisfaction with pharmaceutical care – questionnaire
- Adverse drug reactions, patients' compliance and pharmacists' practical experiences – questionnaire

Design

In order to measure the impact of pharmaceutical care a prospective, two-armed, sequential study design was conducted.

Period of study: January 2005 until September 2007

Inclusion criteria:

- Diagnosed Breast Cancer – First Chemotherapy
- Age: minimum 18 years
- Written informed consent
- Ability to speak, read and write in German language

Exclusion criteria:

- Diseases or mental states impeding that the patient completely understood the provided information on the study (e.g. Alzheimer's disease).

Results

92 patients were recruited in a standard care group receiving standard care in community pharmacies (n=46) or in an intensified care group receiving pharmaceutical care by trained pharmacists (n=46).

The obtained data suggest an improvement of the measured outcomes.

Quality-of-life

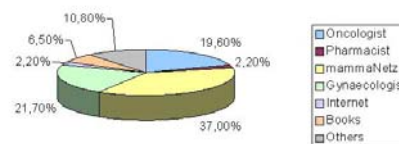
Three months after release from hospital quality-of-life was significantly higher in the intensified care group in 8 out of 30 subscales (p<0.05). After six and twelve months significance could only be noticed in case of disturbed sleep (p<0.05) (subscales 11). Evaluation with Mann-Whitney U-Test.

EORTC Subscale	Significance (p) ^(I)	Significance (p) ^(II)	Significance (p) ^(III)
Difficulties in walking a short distance	0.022	0.806	0.523
Disturbed sleep	0.020	0.032	0.026
Loss of appetite	0.007	0.329	0.601
Exertion	0.014	0.054	0.229
Worries	0.023	0.124	0.254
Excitability	0.001	0.559	0.387
Difficulties in remembering s.th.	0.041	0.687	0.538
Impairment of social gathering and joint adventures	0.045	0.743	0.854

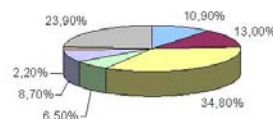
(I), (II), (III) - Questioning three (I), six (II) and twelve (III) months after release from hospital.

Source of information

In the standard care group pharmacists still seemed to play a minor role as source of information (17.4%) compared with patients from the intensified care group (97.8%) (multiple selection from 22 options was possible). Pharmacists were mentioned as most important source of information in 2.2% vs. 13.0%.



Most Important source of information: Standard Care Group



Most Important source of information: Intensified Care Group

Questioning three months after release from hospital.

Patient satisfaction

Three, six and twelve months after release from hospital patient satisfaction with information was measured with a 5-point Likert scale where 5 represents the highest satisfaction. Satisfaction was significantly higher in the intensified care group in all subscales (p<0.001). Evaluation with Mann-Whitney U-Test.

Subscales	Standard Care Group			Intensified Care Group			Significance (p)
	n	Median	Quartiles	n	Median	Quartiles	
Information on cancer treatment	46 ⁽ⁿ⁾	3.00	3.00-4.00	46 ⁽ⁿ⁾	5.00	4.00-5.00	< 0.001
	44 ⁽ⁿ⁾	3.00	3.00-4.00	45 ⁽ⁿ⁾	5.00	5.00-5.00	< 0.001
	40 ⁽ⁿ⁾	3.00	3.00-4.00	41 ⁽ⁿ⁾	5.00	5.00-5.00	< 0.001
Information on side effects	46 ⁽ⁿ⁾	2.00	1.00-3.00	46 ⁽ⁿ⁾	5.00	4.00-5.00	< 0.001
	44 ⁽ⁿ⁾	2.00	2.00-3.00	45 ⁽ⁿ⁾	5.00	4.00-5.00	< 0.001
	40 ⁽ⁿ⁾	3.00	2.00-3.00	41 ⁽ⁿ⁾	5.00	4.00-5.00	< 0.001
Information on vitamins, herbs, and/or complementary therapies	46 ⁽ⁿ⁾	2.00	2.00-3.00	46 ⁽ⁿ⁾	4.00	4.00-5.00	< 0.001
	44 ⁽ⁿ⁾	3.00	2.00-3.00	45 ⁽ⁿ⁾	5.00	4.00-5.00	< 0.001
	40 ⁽ⁿ⁾	3.00	2.00-3.00	41 ⁽ⁿ⁾	5.00	4.00-5.00	< 0.001
Information on resources (human and material)	46 ⁽ⁿ⁾	4.00	3.00-4.00	46 ⁽ⁿ⁾	5.00	5.00-5.00	< 0.001
	44 ⁽ⁿ⁾	4.00	3.00-4.00	45 ⁽ⁿ⁾	5.00	5.00-5.00	< 0.001
	40 ⁽ⁿ⁾	4.00	4.00-4.00	41 ⁽ⁿ⁾	5.00	5.00-5.00	< 0.001
Overall satisfaction	46 ⁽ⁿ⁾	3.00	2.00-4.00	46 ⁽ⁿ⁾	5.00	4.00-5.00	< 0.001
	44 ⁽ⁿ⁾	3.00	2.00-4.00	45 ⁽ⁿ⁾	5.00	4.75-5.00	< 0.001
	40 ⁽ⁿ⁾	3.00	3.00-4.00	41 ⁽ⁿ⁾	5.00	5.00-5.00	< 0.001

(I), (II), (III) - Questioning three (I), six (II) and twelve (III) months after release from hospital.

The other outcome parameters are still under evaluation.

Conclusions

Patients with breast cancer seem to benefit from pharmaceutical care as demonstrated by improved patient satisfaction and quality-of-life.

Up to now 64 community pharmacies of Augsburg and surrounding area were integrated in the cross-sectoral health care model "mammaNetz". The pharmaceutical care concept was implemented in the daily routine and well accepted by patients and health care providers.

Data of pharmacists' surveys are still pending.

References

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Acknowledgements

We gratefully acknowledge the "Bayerische Landesapothekerkammer" for funding this project. We also thank all the patients, pharmacists, case managers and networking partners of mammaNetz.