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CONSIDERATIONS ON THE SURGICAL TREATMENT OF DUCT CARCINOMA IN SITU (DCIS) OF THE BREAST FROM DRG SYSTEM PERSPECTIVE

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Abstract

Medical services for the treatment of Duct Carcinoma In Situ (DCIS) may be delivered in inpatient or outpatient care conditions.

***The aim** of this study was to identify services recommended during patient hospitalization, and those more suitable for outpatient health care services, as well as measures to optimize the management of these cases from the reimbursement of medical services system perspective.*

***Patients and methods.** We conducted our study on the case records of the Oncological Institute „Prof. Dr. Ion Chiricuță" Cluj-Napoca (IOCN) over a period of five years (2008-2012).*

***Results.** Analysis of the 129 cases of patient hospitalization showed that for the mastectomies performed the mean relative value (VR) for the discharged cases was slightly greater that the referential VR stated in the reimbursement framework contract (VR for IOCN discharged case was 1.2529 vs. 1.2097 referential VR in the contract). VR for the cases discharged after hospitalization in which a local excision had been performed was 0.6778 compared to 0.5482 the referential VR from the reimbursement contract. In the same period, the entity-specific flat-rate reimbursement for local excisions varied from 539 RON to 360 RON, depending on the year.*

***Conclusions.** Our study concludes that the treatment of DCIS cases did not negatively influence IOCN funding. In addition, it recommends the negotiation of combined services packages for the lesions that require imaging localization.*

Keywords: DCIS, DRG, GDRG, surgical, management

Introduction

The management of DCIS cases also includes identifying how medical services provided to the insured persons is reflected in financing the medical services provider and finding the measures to ensure optimal reimbursement for the provided services.

Reimbursement of cases discharged from continuous hospitalization are based on the Diagnosis – Releated Groups (DRG) system, while for cases discharged from daily hospitalization mode there is a fixed amount which is reimbursed depending on the type of surgical procedure, according to the reimbursement contract.

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Aim of study

The purpose of this study was to describe, from DRG system perspective, the manner in which surgical management of DCIS cases is reflected in budgeting the medical activity in IOCN and, if possible, to identify methods for the optimization of these cases.

Patients and methods

Our study is a **5-year retrospective one.** To carry out this research we used the case records of IOCN between 2008 and 2012, i.e. meaning the last five complete years for which DRG system data were available.

We identified all DCIS cases filtering the database of the pathology department based on International Classification of Diseases - Oncology (code 8500/2) [1] eliminated all the cases for which the diagnosis of DCIS was a residual disease of an invasive carcinoma with neo-adjuvant chemotherapy.

Subsequently, for all the remaining cases the patient's record and the electronic database of IOCN (including DRG department) were studied. We obtained the approval of the Board of Directors (no.7352/2013) for this study. Being a retrospective, non-experimental study, no ethical commission approval was necessary.

For each DCIS case, only discharge episodes for DCIS treatment were retained (eliminating discharge sequences for co-morbidities) and data were collected about the type of admission (inpatient or outpatient). For the hospitalizations data were collected regarding the length of stay, relative value (VR) of the case, DRG group (GDRG) in which the case was included and type of surgical procedure, every admission being treated as a separate item in the study's database (so there are cases with more items in the database).

We used only data regarding surgical or diagnostic procedures.

There were 129 inpatient hospitalization items, 44 for mastectomies and 85 for local excisions or surgical related diagnostic procedures (wire localization).

Data analysis was carried-out using Microsoft Excel 2010^{R} software and results were presented by reference to RV provided by the reimbursement framework contract.

Results

Table no. I synopticaly presents studied parameters for the cases of our series.

Since 2008 the DRG encoding system has been nationwide adopted using the Australian DRG system with adjustment of relative values (RV) to Romania [2].

Evolution of the Case Mix Index (CMI) for IOCN reported to the number of discharges is illustrated in figure 1.

During the years 2008, 2009 and 2010 reimbursement for a case discharged from daily hospitalization for a surgical procedure in general intravenous anesthesia was rated according to the reimbursement contract framework at 539 RON. During the years 2011 and 2012 the amount of the reimbursement was 360 RON irrespective of the anesthesia type. Beginning with 2013 the reimbursement framework contract provides several big groups of procedure, so the mentioned breast surgery today is reimbursed as an entity-specific flat – rate procedure quoted at 452 RON.

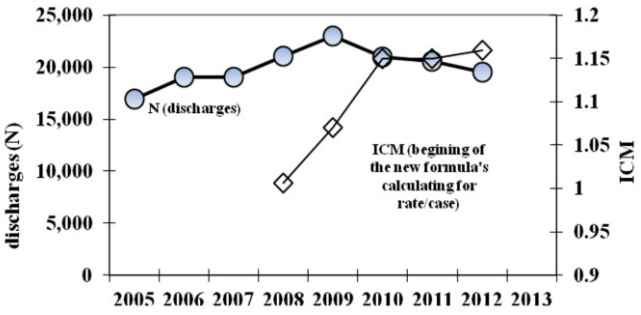

Figure 1. Evolution of the number of discharges after hospitalization and CMI value for IOCN, between 1999-2012

The inpatient cases of our series (surgically treated), for a 5 years period between 2008–2012 were grouped during the validation process in one Major Diagnosis Category (MDC DRG) and 2 DRG groups (GDRG) depending on the surgical procedure performed as follows:

- "MDC 09 surgical, Diseases and disorders of the skin, subcutaneous tissue and breast;
- GDRG J1031 Minor procedures for malignant disorders of the breast" [2], with a RV of 0.5482;
- „MDC 09 surgical, Diseases and disorders of the skin, subcutaneous tissue and breast
- GDRG J1021 Major procedures for malignant disorders of the breast" [2], with a RV of 1.2097.

Table I. Features of the studied series

		Mastectomy		Local excision	
RV	Minimal		1.2		0.37
	Maximal		3.53		3.53
	Average		1.2529		0.6778
	Grouping RV	1.2	43	0.37	3
		3.53	1	0.54	67
				1.2	14
				3.53	1
Length of stay (days)	Minimal		2		1
	Maximal		34		21
	Average		8.59		3.05
	Grouping stays	2-7	30	1	29
		9	3	2	22
		11	2	3	12
		14-21	8	4-9	18
		34	1	10/14/21	2/1/1

For these cases, the average length of stay (ALS) of the hospitalization episodes was 3.05 days for the GDRG J1031, smaller than the referral provided by the reimbursement framework contract that is 4.52 days. Referral limits are between 1 and 16 days. From the 85 cases discharged with this GDRG, 29 had 1 day, 22 had 2 days, and 12 cases had 3 days of hospitalization. In fact 63 cases out of 85 (74.11%) had a shorter stay than the ALS. On the other hand, 1 case had 21 days, 1 case had 14 days and 2 cases had 10 days stays.

Furthermore, for the 85 cases from the GDRG J1031 the RV was 0.6778 greater than the referral provided by the reimbursement framework contract of 0,5482 due to the existence of 14 cases with a 1.2 RV and 1 case with a RV of 3.53 with only 3 cases with 0.37 RV apart of the 64 cases with a RV of 0.54.

For GDRG J1021 there were 44 discharges after hospitalization included in this GDRG. The average length of stay for these cases was 8.59 days, less than the referral of 10.36 days provided by the reimbursement framework contract; 30 out of the 44 cases (68.18%) had a length of stay between 2 and 7 days. Only one case had a hospitalization of 34 days, longer than the superior limit of the stay length provided by the reimbursement framework contract which is 31 days all others cases having hospital stays under or equal to 21 days (8 cases between 14 and 21 days, 3 cases 9 days and 2 cases 11 days).

Also, the RV calculated for this GDRG cases was 1.2529, slightly higher than de referral which is 1.2097.

For GDRG J1031 cases the referral average length of stay was 4.52 days with inferior limit of stay of one day and superior limit of 16 days and for GDRG J1021 cases the referral average length of stay was 10.36 days with inferior limit 3 days and superior limit 31 days, as provided by the reimbursement framework contract.

Discussion

Analyzing reimbursements for each GDRG case, for the cases in GDRG J1031 comparing with the referrals RV=0.5482 and average length of stay 3 days the reimbursement was inferior to the referral reimbursement from the financing health insurance house. Meanwhile, for the cases in the GDRG J1021 with referrals RV=1.2097 and average length of stay of 8 days the reimbursement was superior to the referral reimbursement from the financing Health Insurance House.

A feature of this group is the cases of occult breast lesions localization, reimbursed at a RV of 0.23 for a hospitalization discharge. Actually, this amount is beyond the reimbursement for a daily hospitalization discharge although the occult breast lesion localization involves the initial mammogram (including the wire) and the specimen radiography to confirm completeness of the excision. Reimbursement of these cases usually involves either 2 daily hospitalizations, one for lesion localization and one for surgical excision, specimen radiography and pathologic report or hospitalization.

This is why we believe that it might be useful, following the example of others, to offer packages of combined services (for example chemotherapy and monitoring of oncologic patients), to negotiate a pack dedicated to occult breast lesions diagnosis and treatment which should cover diagnostic workup (including mammogram with wire localization), surgical excision under general intravenous anesthesia, specimen radiography and pathological report.

For the mastectomies performed the RV being superior to the referral RV and the average length of stay inferior to the referral provided by the reimbursement framework contract, these cases are recommended to be solved in inpatient hospitalization. For the local excisions because of the RV of 0.54 (or 0.23 for lesion localization), these cases are recommended to be solved as entity-specific flat-rate reimbursement cases due to the fact that another case with a greater RV can be admitted in inpatient hospitalization instead.

For a case solved in inpatient hospitalization from the 129 cases of our series, the rate per weighted case corresponding to the studied year is presented in table no II, which also presents Case Mix Indexes for IOCN (reimbursement being rate per weighted case multiplied by RV).

However, if we compare two local excisions of the same degree of difficulty, for example one with a RV of 0.54, the more favorable reimbursement for the hospital is the one from inpatient hospitalization. Moreover, 29 out of 85 cases (34.11%) had hospital stays of one day, or 63 out of 85 cases (74.11%) had hospital stays between 1 and 3 days, less than the referral 4.52 days provided by the reimbursement framework contract. Too many such cases can decrease the Case Mix Index and the RV of the hospital.

Although European countries base their reimbursement systems on the DRG system the effective reimbursement varies very much from one system to another. In a recent study published in The Breast regarding hospital reimbursement in 11 European countries the reimbursement for a vignette case of partial mastectomy varied from 577 Euros in Poland to 5780 Euros in Netherlands [3]. It is a wide range, expressing economic and health politics differences, but also expressing different efforts to adjust breast care activity to limitations of financial resources and to implement microeconomic management at the clinic level of breast care [4].

Comparisons of the absolute values of these numbers between Romania and developed European countries, although impressive, are not conclusive. More important are measures each system takes to adjust its activity to its own resources.

The economic climate of the last 5 years imposed to European health systems more measures to ensure transparency and efficiency in hospitals financing [5] and breast care, as an increasing public health problem is an

Table II. No. of discharges from inpatient hospitalization and key indicators involved in reimbursement of medical services for IOCN, 2008–2012.

	2008	2009	2010	2011	2012
No. of inpatient hospitalizations discharged	21 175	22 113	21 018	20 548	19.520
Achived IOCN CMI	1.00	1.08	1.15	1.16	1.16
Contract referal CMI	0.95	1.00	1.08	1.15	1.15
IOCN contracted TCP (tarif pe caz ponderat)	1.564	1.564	1.486	1.433	1.444

important part of these measures. Continuously increasing incidence of DCIS due to screening programs and public awareness regarding breast cancer is making DCIS one of the important resources- demanding breast care items.

Conclusions

Considering the VR of these cases, their amount in the entire discharged casuistry between 2008 and 2012 (0.10%) and their average length of stay we can conclude that the hospital offered its patients hospitalization services with diagnostic or therapeutic purposes without negative influences in hospital financing.

Reimbursement of DCIS cases discharged from inpatient hospitalization for mastectomies is done at a VR superior to the referential one from the reimbursement framework contract bringing more money for the hospital, without decreasing the case mix index or the average VR of the hospital.

Regarding the local excision, it is advisable to be included in an entity-specific flat-rate reimbursement category as long as instead of it another case with VR greater than 0.54 can be admitted as inpatient hospitalization assuring a better reimbursement and helping to maintain an increased case mix index and VR.

In addition, negotiations of combined services packages for daily hospitalization including mammograms, lesion localization, and surgical excision with intravenous anesthesia, specimen radiography, and pathologic report may simplify reporting and optimize services offered to the patients also providing a better reimbursement for the cases treated in daily hospitalization mode.

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