ECONOMIC BURDEN OF CAPECITABINE, TRASTUZUMAB AND VINORELBINE FOR ANTHRACYCLINE AND/OR TAXANE-PRETREATED INOPERABLE ADVANCED BREAST CANCER

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Introduction

Breast cancer has been the highest incidence among Taiwanese women in 2007. There have been lots of studies regarding economic burden for early-stage breast cancer, but very limited number of studies investigating the economic burden for patients with newly diagnosed inoperable advanced breast cancer (IABC). According to published studies, as anthracyclines and taxanes are frequently used in the adjuvant and first-line metastatic or advanced settings, capecitabine and vinorelbine are frequently used as monotherapy and in combination for advanced breast cancer (ABC). For ABC patients with HER2-positive, Trastuzumab has been the standard treatment. Therefore, capecitabine, trastuzumab and vinorelbine are the three most widely-used chemotherapeutic treatments for ABC patients. Although many studies have proposed on the economic burden of capecitabine, trastuzumab and vinorelbine, the related studies for inoperable advanced breast cancer (IABC) are still limited. The aim of this study was to investigate the economic burden for IABC patients receiving capecitabine, trastuzumab and vinorelbine after anthracycline/taxane treatments.

Materials and Methods

A retrospective cohort analysis based on claims data from National Health Insurance (NHI) database were conducted to estimate the direct medical costs and the health care resource utilization of ABC patients. Three year-cohorts were identified: 2004/05, 2005/06 and 2006/07. A Charlson Comorbidity Index (CCI) score for evaluating each patient's concurrent illnesses was computed during the study period and was used to adjust for expected medical resource utilization and medical costs associated with major comorbidity conditions. A generalized linear model (GLM) was employed for comparing the differences of medical resource utilization between different time-of-specific-chemotherapeutic-drug-use groups (including: Capecitabine, Herceptin, Vinorelbine). The outcome variables were inpatient hospital admissions (Unit: times), length of hospital stay (LOS, Unit: days) and number of ambulatory visits (Unit: times), inpatient medical cost (Unit: NT dollars), ambulatory medical cost (Unit: NT dollars) and overall medical costs (Unit: NT dollars). The covariates included age, CCI score, receiving radiotherapy or not.

Table 1 Incidence of breast cancer and IABC patients from 2004 to 2006

Year	Women all cancer incidence[1]	Breast cancer (BC) incidence[1]	Inoperable ABC (IABC) incidence[2]	IABC / BC Incidence (%)	ATC[3]	ATH[4]	ATV[5]	(ATC+ATH+ATV) / IABC (%)
		(A)	(B)	(C) = (B)/(A)	(D)	(E)	(F)	(G)=(D+E+F)/(B)
2004	28821	6176	602	9.75	88	65	103	42.52
2005	29476	6593	520	7.89	134	96	96	62.69
2006	31276	6895	507	7.35	129	164	153	87.97
Total	89573	19664	1629	8.28	351	325	352	63.11

[1]The incidence data were from the Taiwan Cancer Registration System, Bureau of Health Promotion, Department of Health, Executive Yuan, Taiwan, R.O.C.
[2]estimated from this study
[3]ATC: inoperable ABC patients receiving Capecitabine subsequent to anthracycline and taxane
[4]ATH: inoperable ABC patients receiving Herceptin subsequent to anthracycline and taxane
[5]ATV: inoperable ABC patients receiving Vinorelbine subsequent to anthracycline and taxane

Results

On the basis of cases identified by inclusion/exclusion criteria in the NHI enrollment data file, a total of 1629 women who were newly diagnosed with inoperable advanced breast cancer (IABC) and sequentially received chemotherapies for over 8 months after the initial diagnosis respectively in 2004, 2005 and 2006 were identified from the NHIRD (2004: n=602; 2005 n=520; 2006 n=507, see Table 1). Results showed, on average from 2004 to 2006, for IABC patients receiving Capecitabine, Trastuzumab and Vinorelbine, the IPD admissions were kept on 8~9 times/year, but the length of stay (LOS) decreased >50%. However, the OPD visits increased >15%. The OPD cost increased significantly about 30%, IPD cost increased about 20% (except for Trastuzumab, which were kept constant). The overall medical cost seemed to decrease for Capecitabine and Trastuzumab, increase for Vinorelbine, but it did not show statistically significant trends.

Conclusion

Our findings demonstrate that the IABC patients who received capecitabine, trastuzumab and vinorelbine after anthracycline/taxane treatments have utilized more OPD health resources in recent years, however, the IPD health resources were kept constant or slightly decreased (but not statistically significant). In summary, IABC patients who received capecitabine, trastuzumab and vinorelbine after anthracycline/taxane treatments did increase OPD medical cost but did not increase overall medical cost significantly.