

Study on Pharmaceutical economics in light of clinical Pharmacology Clinical Application of Information about the Economy of Antibiotic Preparations

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Abstract :

Objective — Although the development of carcinostatics has recently improved the effectiveness of treatments for hematopoietic organ tumors, the occurrence of neutropenia, an adverse drug reaction of carcinostatics, has not been effectively prevented despite the administration of G-CSF preparations, and therefore has remained a problem that confronts clinical practices. Differences in the efficacy and economy of antimicrobial treatment for infectious diseases in patients who undergo chemotherapy stemming from differences in combinations of antibiotic preparations have not been fully investigated. We examined the difference of effectiveness and economical efficiency by the combination of the antibiotic agent on the patient who the chemotherapy was enforced.

Design — We selected patients randomly with hematopoietic organ tumors who presented MRSA infection disease during interval stage of chemotherapy, and investigated the usage of antibiotic preparations.

Methods — The study included 77 patients hospitalized in Kitasato University Hospital between January, 1997 and December, 1998, who underwent chemotherapy, and were administered two or more antibiotic preparations to treat MRSA, detected during an interval stage.

The use and the cost of antibiotic preparations administered from the beginning of treatment to the time when a bacteriologic test proved negative were retrospectively analyzed.

For patients who were effectively treated with antibiotics (in the following, referred as “the effective case group”), the combinations of antibiotic preparations administered during the study period (i.e. between January, 1997 and December, 1998), the total number of prescribed vials, duration, and the total drug expenditure were examined. For patients whom antibiotics were ineffective (in the following, referred as “the ineffective case group”), the combinations of antibiotic preparations administered by the time when treatment was terminated, the total number of prescribed vials, duration, and the total drug expenditure were investigated. Drug expenditure was calculated according to the drug price lists of 1997 and 1998. As a statistical method, Welch's t test was used with the level of significant at $p < 0.05$.

Results — The findings of the present study suggested that a combined therapy of vancomycin hydrochloride (VCM) and an antibiotic preparation of the carbapenem class is useful in terms of efficacy and economy for treatment of MRSA in patients with hematopoietic organ tumors.

Conclusion — In the future, it should contribute to the clinic by collecting and evaluating more exact information.

Keyword : Pharmaco-economics, MRSA, vancomycin