Ondansetron serum concentration and polymorphisms of CYP2D6, ABCB1 and 5-HT3B receptor genes in the treatment of chemoterapy induced nausea and vomiting

Title	Ondansetron serum concentration and polymorphisms of CYP2D6, ABCB1 and 5-HT3B receptor genes in the treatment of chemoterapy induced nausea and vomiting
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Abstract	This study was aimed to understand differences of ondansetron serum concentrationin each antiemetic responses, polymorphisms of 5HT3B receptor, CYP2D6 and ABCB1genes in Indonesian cancer patients treated with high emetogenic cytostatics. We recruitedcancer patients in Dr Sardjito Hospital treated with cisplatin (Ã¢Â‰Â¥ 50 mg/m 2) as monotherapyor combination therapy. Patients were treated with ondansetron 8 mg intravenously anddexamethasone 8 mg intravenously and metoclopramide (10 mg orally) after cytostaticadministration until 5 days after chemotherapy. We cathegorized the nausea and vomitinggrade according to the National Cancer Institute Common Toxicity Criteria v.3. We alsodetermined some SNPs of ABCB1, 5HT3B and CYP2D6 genes using realtime PCR. Werecruited 191 cancer patients in this study with the average of ondansetron serumconcentration reached 33.48 ng/ml (SD: 18.54). According to the patientsÃ¢Â€Â™ response tothe antiemetic, during the acute phase, 21.8% patients experienced acute nausea and30.2% patients experienced acute vomiting. Only the haplotype of CTG-CTG of ABCB1which have significant association with ondansetron serum concentration. EM patients ofCYP2D6 and patients with haplotype of delAG of 5HT3B had lower ondansetron serumconcentration. However, IM patients of CYP2D6 showed higher ondansetron serumconcentration and lower grade of nausea and vomiting. Variations of ABCB1, CYP2D6and 5HT3B may be used as pharmacogenetic marker in predicting antiemetic response incancer patients receiving highly emetogenic cytostatic.
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