Poster

[P26-8] P26-8: Oncologic drugs (4): Pharmacokinetics, TDM practice

Chair: Kohji Naora, Japan

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[P26-8-7] Assessment of renal function of cancer patients for dosing carboplatin

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Background

Carboplatin is excreted primarily through the kidneys; therefore its dosage is usually determined based on the renal function, primarily by estimation of glomerular filtration rate (GFR). A careful assessment of renal function is therefore essential. GFR can be measured by the "gold standard" method iohexol clearance or estimated by applying mathematical formulas. GFR determination by iohexol clearance is expensive and too time-consuming for routine application, so usually an estimating method is applied to determine GFR. There is an uncertainty about the selection of GFR estimation methods which is most appropriate for estimating renal function in cancer patients treated with carboplatin. We investigated the correlation of the following six GFR estimation methods: Cockcroft -Gault with uncalibrated creatinine (CGold), Cockcroft-Gault (CG) with calibrated creatinine, cystatin C, Modification of Diet in Renal Disease Study (MDRD4), Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI), and Lund-Malmo revised (LM rev), with the "gold standard" method iohexol clearance.

Method

Fifty-eight (46 female and 12 male) out of total 296 cancer patients (with head and neck, gynecological, and lung cancer) from the oncology clinic at Radiumhemmet, Karolinska University Hospital, who implemented ioxhexol clearance before treatment with carboplatin during 2013, were included. GFR in these patients was calculated by the above formulas. Linear regression was applied to determine correlation between iohexol clerarance and the other estimating methods.

Results

CGold and cystatin C tended to underestimate GFR while MDRD4, the CKD-EPI, and CG tended to overestimate GFR. LM rev matched the iohexol clearance closely with a bias approaching zero. The average estimated GFR was 66,3 (± 25,8) with iohexol and 66,2 (± 24,7) with LM rev. However, there was only CGold that had a significant difference with average GFR

Conclusions

Lund-Malmo (LM rev) correlates best to iohexol clearance in this group of cancer patients. Further studies are warranted to elucidate how LM rev correlates to carboplatin clearance.