# Retrospective study of immediate hypersensitivity (IHS) reactions to platinum salts in the University Hospital of Nancy

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Dear Editor,

Fifty-eight patients (10 male; 48 female) were referred to the University Hospital of Nancy for an IHS (Immediate Hypersensitivity) to platinum salts after having experienced a reaction corresponding to Ring&Messmer's classification (e.g. generalised erythema for grade I or cardiovascular collapse for grade III). All patients were examined between February 2015 and August 2021. Skin prick tests (SPT) for all three platinum salts were performed: oxaliplatin and cisplatin (0.1; 1mg/mL), and carboplatin (1,10mg/mL). If SPT remained negative, intradermal tests (IDR) were performed at concentrations from 0.01 to 1mg/ml for oxaliplatin and cisplatin and 0.1 to 10 mg/mL for carboplatin.

Thirty-one of the 58 patients who had presented a grade I (25) or II (6) reaction (according to Ring&Messmer's classification) and had negative tests to platinum salts were able to continue their chemotherapy with an extended perfusion period. Among the 27 remaining patients who had presented a grade II or III reaction (generalized erythema, hypotension, tachycardia, vomiting) within the first ten minutes of the perfusion, we recorded a positive SPT for 13 (10 carboplatin, 1 cisplatin and 2 oxaliplatin), and only a positive IDR for the 14 others (8 carboplatin and 6 cisplatin). In most cases (17/27) only erythema and not urticaria was observed. Assay of tryptase was never performed. Desensitization protocol was offered to 12 patients who had positive skin tests because the culprit platinum salt was considered as essential by the oncologists. Desensitization was successful for 9 patients using a 12-step protocol. Two failed due to urticaria at steps 8 and 12 and one due to lipothymia with erythema of the neckline and abdominal pain at step 11. An alternative platinum salt or a different chemotherapy was chosen for the other 15 patients with positive skin tests.

Conclusion:

Skin tests are effective in the assessment of IHS to platinum salts and highlight a strong correlation with the reaction's severity[2,3,4]. Beside it is essential to test platinum salts at pure concentration as our experience showed us that 3 patients only had positive IDR at 10mg/mL for carboplatin and 1mg/mL for cisplatin. These results demonstrate that negative skin tests enable the reintroduction of the culprit platinum salt by

extending the perfusion period. In the case of positivity of SPT or IDR (probably IgE-dependant mechanism), desensitization can be performed in step 12 or 16, depending on the severity of the reaction[5].

We have no conflict of interest to declare.

In line with the French Government policy, the local Ethic board approvment is not needed in monocentric retrospective studies.

Patients were writtenly informed that their health data could be used for scientific studies purposes unless otherwise written request (as specified in the French Public Health Code law number 78-17 6$^{th}$ January 1978 and UE settlement 2016/769 on the protection of personal data.

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