

**Conclusions** A valid tool was developed that measured the baseline performance of the MMUH clinical pharmacy service for the safe prescribing of intermittent medicines. Clarification of the clinical pharmacy services SOP will lead to improved performance as pharmacists had varying interpretations of the SOP.

No conflict of interest.

### CPC-138 THE PRESCRIPTION OF ANTHRACYCLINES DURING PREGNANCY IN HAEMATOLOGY: CASE REPORTS AND LITERATURE REVIEW

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**Background** Anthracyclines are one of the most important groups of drugs used nowadays in cancer chemotherapy. Chemotherapy is essential in the management of haematological malignancies (HM). When acute leukaemia (AL), aggressive non-Hodgkin's lymphoma (NHL) or Hodgkin's lymphoma (HL) occur during pregnancy, chemotherapy is an emergency but foetal risk must be considered.

**Purpose** To evaluate foetal and maternal outcomes associated with the prescription of anthracyclines in pregnant women with HM.

**Materials and Methods** Cases of pregnant women with AL, NHL or HL treated by anthracyclines were collected from the Teratogenic Agent Information Centre (TAIC), a French reference centre providing specialised information for clinicians about drug use in pregnancy. A literature review was performed in the PubMed and Embase databases until May 2012 (keywords: pregnancy, acute leukaemia, Hodgkin lymphoma, non-Hodgkin lymphoma, cancer chemotherapy, doxorubicin, daunorubicin and idarubicin). Selection criteria of articles: diagnosis of HM and anthracycline prescription during pregnancy, foetal outcome.

**Results** We report 5 cases of pregnant women with HM (4 AL, 1 HL) treated early in the 3rd trimester by chemotherapy with doxorubicin or daunorubicin at standard dosage. All 5 newborns were normal, but 2 were premature deliveries. 3 maternal outcomes were complete remission (2 unknown). 81 articles were selected, corresponding to 134 pregnant women with AL (95 cases), HL (16) or NHL (23) treated by chemotherapy with daunorubicin (65 cases), doxorubicin (59) or idarubicin (10). Normal neonatal outcomes (100/134) were 88%, 68% and 40% for doxorubicin, daunorubicin and idarubicin respectively, 79%, 77% and 45% for exposure from 3rd (26 cases), 2nd (69) and 1st trimester (11) respectively and 96%, 81% and 68% in NHL, LH and AL respectively. Foetal toxicities were death (20), growth retardation (8) and congenital abnormalities (6). Only idarubicin was associated with foetal cardiomyopathy. 97 maternal outcomes were known with remissions (71 cases) and progressions, relapses or deaths (26 cases).

**Conclusions** Embryo-foetal toxicity depends on gestational age, anthracycline and HM. 2nd or 3rd trimester exposures were mainly associated with favourable neonatal outcomes. Idarubicin was specifically associated with a risk of foetal cardiotoxicity, probably due to its lipophilic nature, facilitating placental transfer. Unfavourable foetal outcomes were more frequent in AL compared to lymphomas, probably reflecting that chemotherapy can never be delayed till post-partum in AL. It is possible to prescribe anthracyclines for HM in the 2nd and 3rd trimesters of pregnancy with minimal risk to the developing foetus but then the treatment must be conducted by a multidisciplinary team.

No conflict of interest.

### CPC-139 THERAPEUTIC DRUG MONITORING FOR GLYCOPEPTIDES AND AMINOGLYCOSIDES: ACTUAL SITUATION AND PERSPECTIVES IN A FRENCH UNIVERSITY HOSPITAL

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**Background** Optimising glycopeptide and aminoglycoside treatment with Therapeutic Drug Monitoring is recommended. Under-dosing can lead to resistance and ineffective treatment while over-dosing is associated with toxicity.

**Purpose** To evaluate current practise by monitoring aminoglycosides and glycopeptides in a French university hospital: levels (trough and peak concentrations) and percentage of optimal concentrations based on our internal antibiotics guide.

**Materials and Methods** Prescriptions for glycopeptides and/or aminoglycosides, of which at least one dose had been given, were reviewed over one month (February–March 2012). Our data pool contained: patient characteristics, infection and antibiotic treatment background, serum concentration.

**Results** A wide range of official optimal target serum concentrations has been recommended (Consensus Review of the American Society of Health-System Pharmacists, French Pharmacology and Therapeutic Society, internal guidelines, etc.)

91 prescriptions (31 aminoglycosides, 60 glycopeptides) were analysed: the largest percentage was represented by vancomycin (55%) 80% of which were for continuous infusion. Serum vancomycin concentrations are optimised by using continuous regimens (Table 1).

For the two regimens, (continuous and intermittent, 10% of trough vancomycin serum concentrations were below 10 mg/L, exposing the patient to subtherapeutic doses and a higher risk of selecting resistant microorganisms.

10 prescriptions for teicoplanin were reviewed: 70% of serum concentrations were below 20 mg/L and 30% below 10 mg/L.

50% of aminoglycosides trough concentrations were below the internal guideline values and target peak concentrations were not reached (amikacin: 67% under 60 mg/L, gentamycin: 90% under 30 mg/L).

**Conclusions** Most aminoglycosides and glycopeptides concentrations didn't reach required therapeutic levels during this study. Consensus guidelines should be proposed to avoid bacterial resistance and guide clinical practise.

#### Abstract CPC-139 Table 1 Serum vancomycin concentrations vary with the infusion regimens

		Continuous infusion regimens	Intermittent infusion regimens
Optimal vancomycin concentrations	[20–30] mg/L	42%	27%
Subtherapeutic vancomycin concentrations	<20 mg/L	33%	54%
	<10 mg/L	8%	27%

No conflict of interest.

### CPC-140 THERAPEUTIC OPTIONS IN ANTI-NMDA RECEPTOR ENCEPHALITIS

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**Background** Despite the expanding knowledge base, much remains to be understood about effective treatments to treat the many symptoms of anti-NMDA receptor encephalitis (anti-NMDA RE).

**Purpose** To describe the treatment options for a case of refractory status epilepticus associated with non-paraneoplastic anti-NMDA RE.

**Materials and Methods** Revised drug-treatment history of the patient.

**Results** A 22-year-old woman with a family history of epilepsy and an arteriovenous malformation (AVM) of the brain, presented a generalised tonic-clonic without clear focal onset and post-critical confusion. She was in non-convulsive status epilepticus.

Treatment was initiated with various intravenous drugs during the 50 days of the status: diazepam, phenytoin, valproic acid, levetiracetam, clonazepam, midazolam, propofol, lacosamide, ketamine, and lidocaine.

It was decided to proceed with induction of barbiturate coma three times, requiring supratherapeutic doses in the second one. Oxcarbazepine was administered via feeding tube.

With these treatments, momentary remission status was achieved although epileptiform activity reappeared when the pharmacological effect expired.

Thirty days after admission, it was decided to repeat computed tomography for development of AVM and investigate again whether the cerebrospinal fluid was positive for anti-NMDA. This being the case, treatment was initiated with methylprednisolone and immunoglobulins.

She continued with clinical status, but electrical brain activity began to fade at the same time that the patient was starting to tolerate enteral nutrition and so oxcarbazepine possibly began to be absorbed.

After discontinuing sedation the patient awoke and opened her eyes. Electroencephalogram was repeated and epileptiform activity had disappeared completely. Facial dyskinesias were treated with clonazepam.

**Conclusions** Whereas the best treatment approach for anti-NMDA RE encompasses a combination of immunotherapy, intensive care, and rehabilitation, there is a dearth of information regarding management of psychiatric and behavioural symptoms [1]. The possibility of resolving the status by oxcarbazepine gavage opens a window into the use of drugs by this route in the event of failure of standard treatment.

#### Reference

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No conflict of interest.

#### CPC-141 TOLERABILITY AND SAFETY OF CARBOPLATIN-BASED CHEMOTHERAPY IN A HEMODIALYSIS PATIENT WITH BREAST CANCER

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**Background** The oncology pharmacist was consulted about the neoadjuvant carboplatin-based chemotherapy regimen for a 59-year-old woman with triple negative stage IIA breast cancer and stage 4 chronic kidney disease. She was undergoing haemodialysis three times a week, on a Tuesday-Thursday-Saturday schedule. The chemotherapy regimen was docetaxel 75 mg/m<sup>2</sup> IV D1, carboplatin AUC 5 IV D1, Q21D, 6 cycles. The major dose-limiting toxicity of carboplatin is myelosuppression, especially thrombocytopenia. As carboplatin is eliminated mainly through the kidneys, dosage

adjustment and timing is required for patients with impaired renal function to prevent severe hematologic toxicity. Carboplatin is removed by haemodialysis.

**Purpose** To examine the tolerability and safety of carboplatin-based chemotherapy and the applicability of the Calvert formula in a haemodialysis patient with localised breast cancer.

**Materials and Methods** We reviewed the literature on the pharmacokinetics, efficacy, tolerability and dosage adjustment of carboplatin. In patients on chronic haemodialysis, the issue is how to evaluate the glomerular filtration rate (GFR) in the Calvert formula. We planned the administration of chemotherapy on a non-dialysis day and the following haemodialysis session to occur 24 hours afterwards. The GFR value was assumed to be 0 mL/min and the carboplatin dose calculated was 125 mg.

**Results** The first two chemotherapy cycles were found to be safe and well tolerated. Neither neutropenia nor thrombocytopenia occurred. After the first cycle, absolute neutrophil nadir count was 5.51 10e-3/mcL and platelet nadir count was 238 10e-3/mcL. Neither allergic or hypersensitivity reactions nor delayed nausea or vomiting occurred. CTCAE grade 3 diarrhoea was controlled with loperamide. Furthermore, a significant reduction in the tumour size was attained.

**Conclusions** Dosage adjustment and timing of carboplatin-based chemotherapy can result in a safe and well-tolerated preoperative treatment option in a haemodialysis patient with localised breast cancer.

No conflict of interest.

#### CPC-142 TOLERANCE TO THE BEAM PROTOCOL BEFORE AUTOLOGOUS HEMATOPOIETIC STEM CELLS TRANSPLANTATION IN CHILDREN TREATED FOR HODGKIN'S LYMPHOMA

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**Background** Patients with Hodgkin's lymphoma and refractory to the first line of treatment or in relapse, received the BEAM conditioning regimen (carmustine, etoposide, cytarabine, melphalan) followed by transplantation of hematopoietic stem cells.

**Purpose** To define the characteristics of patients who received this protocol, evaluate its effectiveness, and analyse the tolerance in relation to the carmustine, a cytotoxic agent responsible for many side effects.

**Materials and Methods** We conducted a retrospective study on patients who received this treatment between January 2001 and September 2011 in the paediatric haematology oncology ward.

A data collection document was created to list the patients' characteristics and information related to the protocol (tolerance, efficacy and previous chemotherapy).

**Results** 14 children with Hodgkin's lymphoma aged between 5 and 17 were given BEAM protocol transplantation conditioning after a relapse (79%) or after tumoural progression during the previous chemotherapies (21%).

Following the BEAM protocol treatment, the overall remission rate was 57%.

Carmustine treatment led to adverse effects in 66% of patients during the infusion. During the 3 months after the transplantation, the main adverse effects were digestive disorders, fever and hematemeses. In the longer term, various pulmonary disorders were observed (pneumonia, pulmonary tuberculosis, breathlessness on exertion, etc.).

**Conclusions** This protocol resulted in remission in approximately two thirds of the cases regardless of the disease stage. The overall