

# The prescription of anthracyclines during pregnancy in haematology: case reports and literature review

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## Introduction

- Anthracyclines is one of the most important group of drugs used nowadays in cancer chemotherapy.
- Chemotherapy is essential in the management of haematological malignancies.
- When acute leukemia (AL), aggressive non-Hodgkin lymphoma (NHL) or Hodgkin lymphoma (HL) occurs during pregnancy, chemotherapy is an emergency but fetal risk must be considered.
- ▶ **Our objective is to evaluate fetal and maternal outcomes associated with anthracyclines prescriptions in pregnant women with haematological malignancies.**

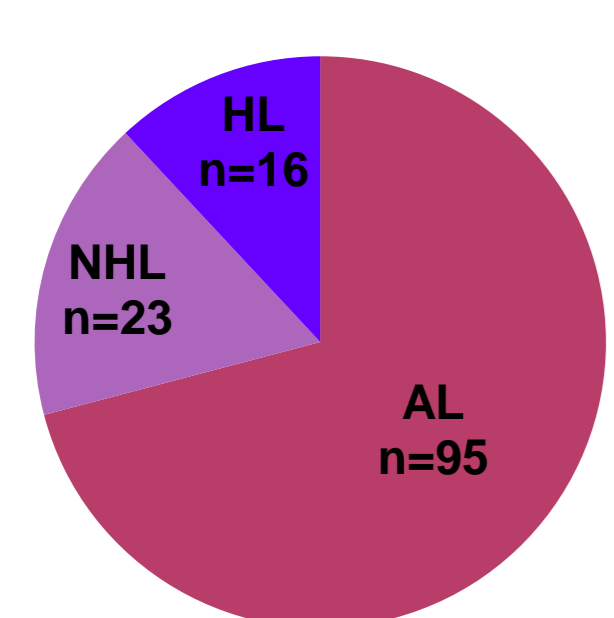
## Materials and Methods

- Literature review was performed in Pudmed and Embase databases until May 2012
  - keywords: pregnancy, acute leukemia, Hodgkin lymphoma, non-Hodgkin lymphoma, cancer chemotherapy, doxorubicin, daunorubicin and idarubicin
  - selection criteria of articles: diagnosis of haematological malignancy and anthracycline prescription during pregnancy, fetal outcome
- Cases of pregnant women with AL, NHL or HL treated by anthracyclines were collected from Teratogenic Agent Information Centre (CRAT), a French reference centre providing specialized information for clinicians about drug use in pregnancy.

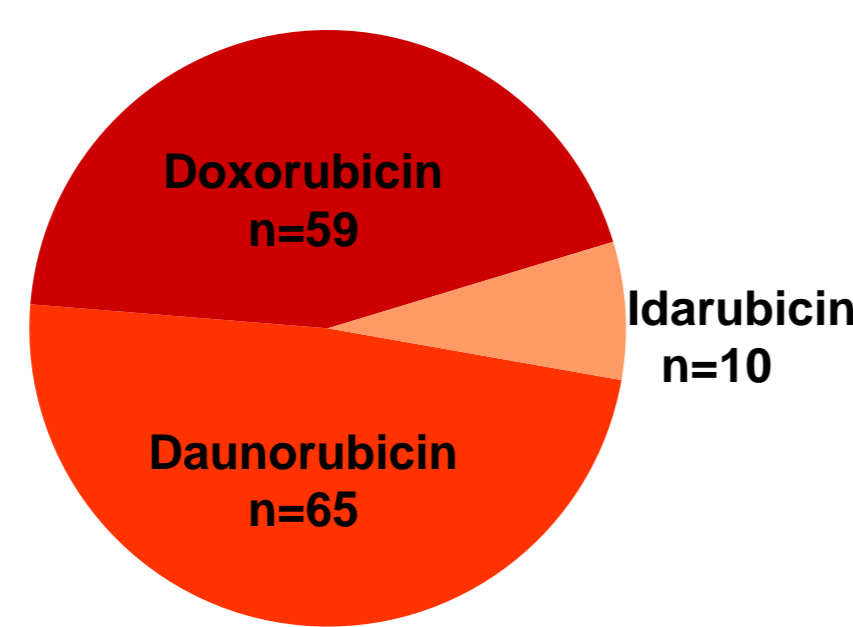
## Results

- Literature review: 81 articles

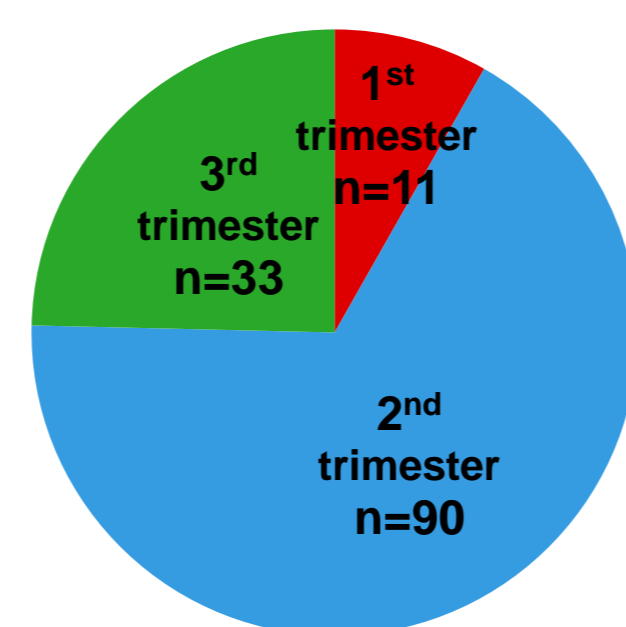
**134 cases** of pregnant women with haematological malignancies treated by anthracyclines during pregnancy



Haematological malignancy

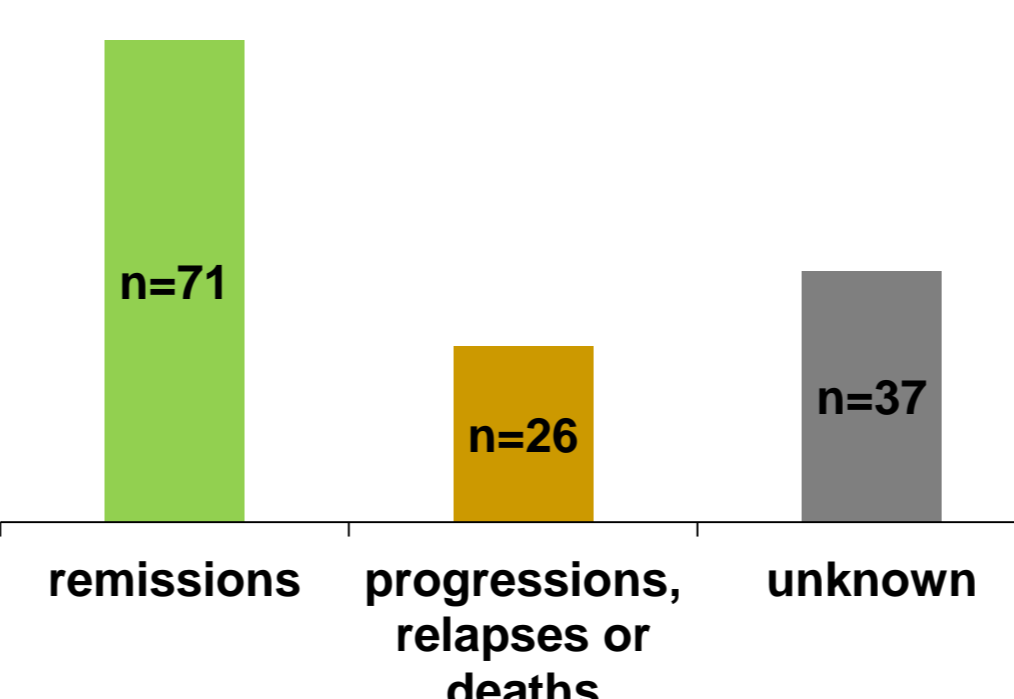


Prescribed anthracycline at standard dosage



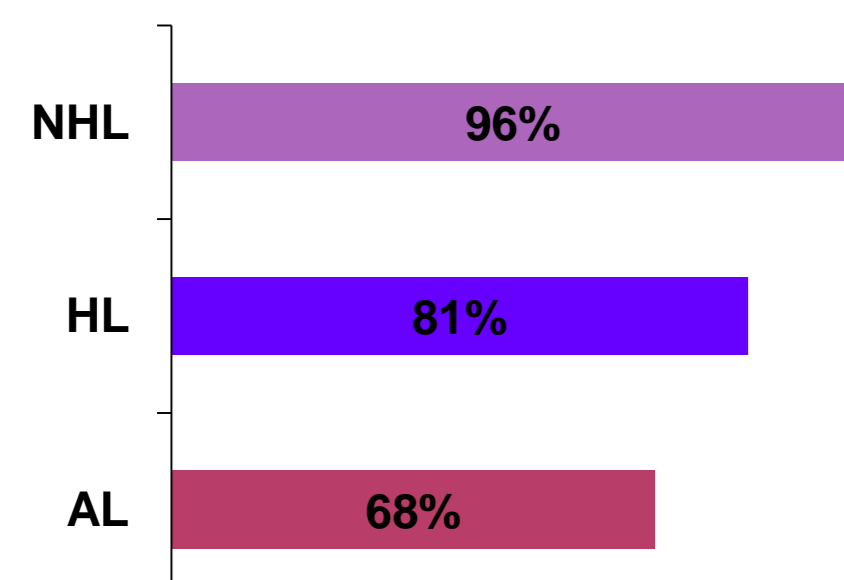
Trimester of treatment/exposure initiation

### Maternal outcomes

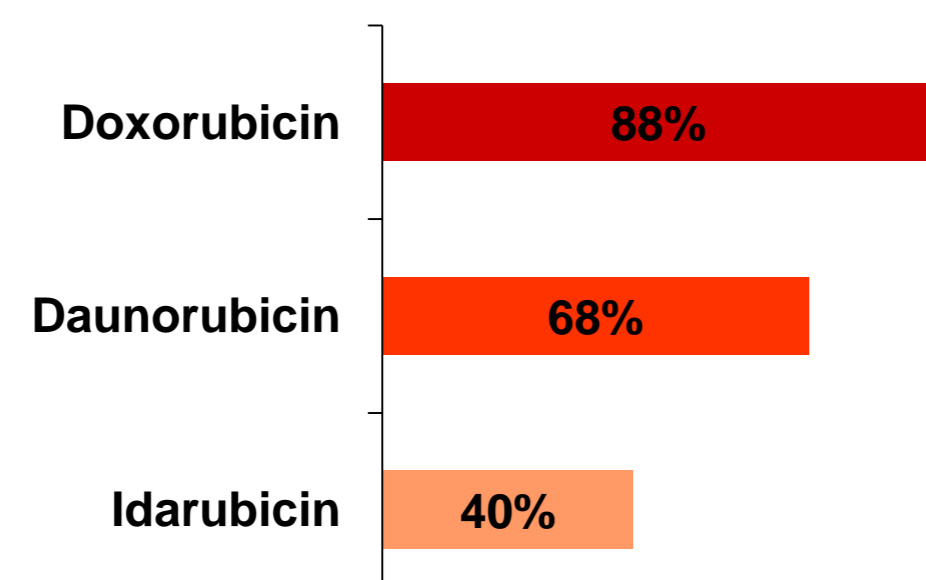


### Normal neonatal outcomes (100/134)

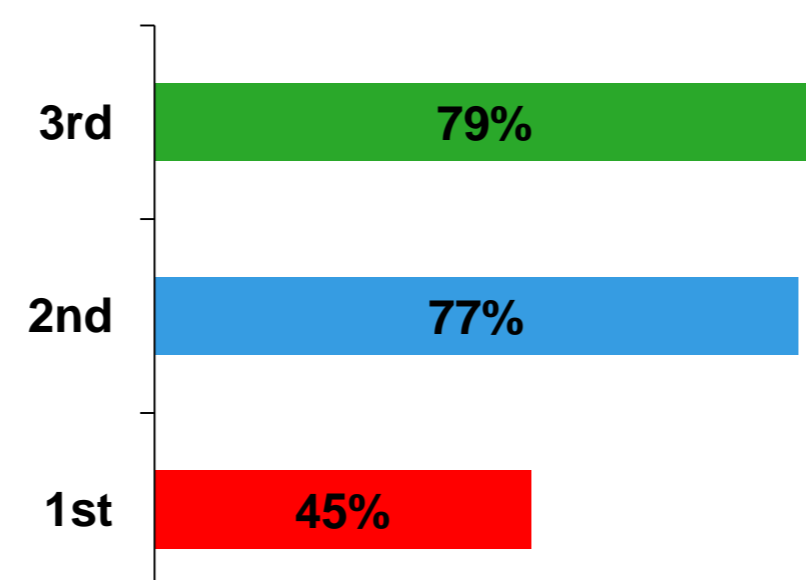
#### Depending on haemopathy



#### Depending on anthracycline



#### Depending on trimester

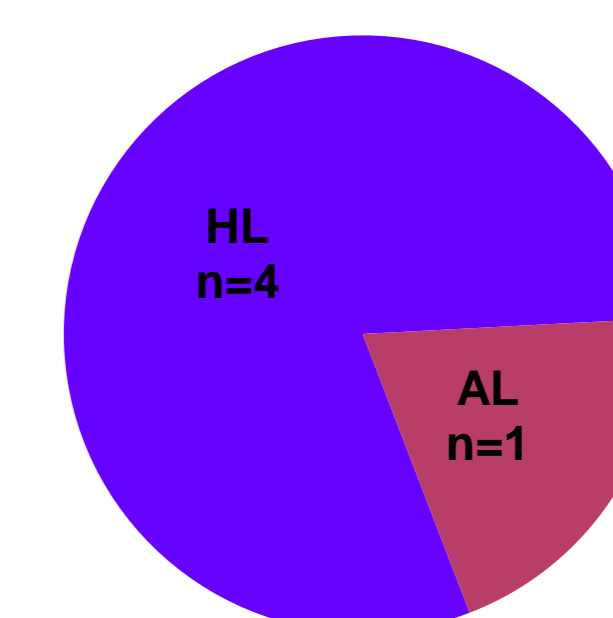


### Fetal toxicities (34/134)

- 20 deaths
- 8 growth retardations
- 6 congenital abnormalities
- only idarubicine was associated with fetal cardiomyopathy

- Case reports from CRAT

**5 cases** of pregnant women with haematological malignancies treated by anthracyclines



- chemotherapy in early 3<sup>rd</sup> trimester
- doxorubicin or daunorubicin at standard dosage
- 5 normal newborns (but 2 preterms)
- 3 maternal complete remission (2 unknown maternal outcomes)

## Conclusions

Embryo-fetal toxicity depends on gestational age, anthracycline and haematological malignancy.

- ▶ 2<sup>nd</sup> or 3<sup>rd</sup> trimester exposures were mainly associated with favorable neonatal outcomes.
- ▶ Idarubicin was specifically associated with risk of fetal cardiotoxicity, probably due to its lipophilicity, facilitating placental transfer.
- ▶ Unfavorable fetal outcomes more frequent in AL compared to lymphomas (NHL, HL), probably reflect that chemotherapy can never be delayed post partum in AL.

▶ **Anthracyclines prescription for haematological malignancies is possible in 2<sup>nd</sup> and 3<sup>rd</sup> trimesters of pregnancy with minimal risk to the developing fetus and then must be conducted by a multidisciplinary team.**