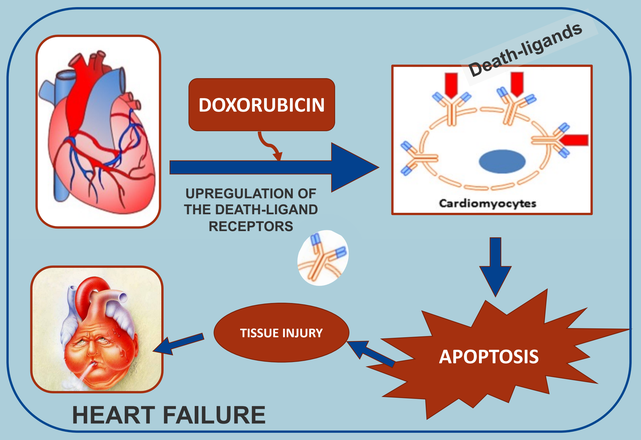
CONGESTIVE HEART FAILURE, AN EARLY UNUSUAL COMPLICATION OF ANTHRACYCLINE BASED CHEMOTHERAPY

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Introduction

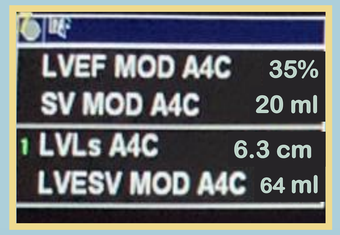
- Anthracyclines are among the chemotherapeutic agents implicated in cardiotoxicity.
- Anthracyclines are associated with an increased risk of developing heart failure with significant comorbidity and mortality. However, anthracyclines remain important components of many curative chemotherapy regimens.
- Risk of cardiac toxicity occurs usually after cumulative dose and is rarely reported after one single exposure.

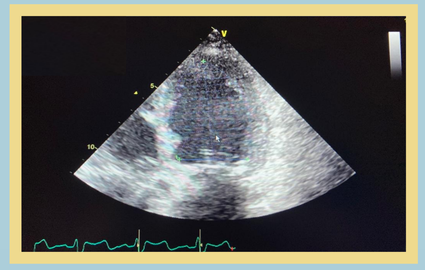


Mechanism of anthracycline-induced cardiac toxicity

Case report

- A 72 years-old female patient, previously healthy, was diagnosed with stage II diffuse large B cell lymphoma CD20 positive and was started on a standard treatment with mini-RCHOP (rituximab, cyclophosphamide, oncovorin, doxorubicin, prednisone) protocol.
- Prior to initiation of chemotherapy geriatric and cardiac assessments were done:
  - Initial cardiac ultrasound was within normal limits: ejection fraction of 60%.
  - Serum troponin was also normal.
- *Ten days after the first session*, she suffered from a worsening dyspnea, with new onset orthopnea and was found to have pulmonary edema with respiratory failure.
- Investigations into the causes of the pulmonary edema showed: pro-BNP > 7500 pg/mL (normal value < 100) & repeated cardiac ultrasound showed a drop in ejection fraction to 35%. Further work up ruled out ischemic heart disease, infiltrative heart disease and viral myocarditis.





Cardiac ultrasound performed 10 days after the first session

- Patient was diagnosed with ANTHRACYCLINE-INDUCED CARDIOMYOPATHY and was started on intravenous diuretics, oral β-blockers, ACE inhibitor and spironolactone.
- Her dyspnea improved and was discharged one week later and continued her treatment with mini-RCOP (without doxorubicin) with complete remission after 6 cycles.
- By the end of the treatment, the cardiac ultrasound revealed an improvement in ejection fraction reaching 50%.

Conclusion

- Anthracycline-induced cardiomyopathy is a serious unpredictable, life-threatening complication.
- It often occurs with cumulative dose exposure of anthracyclines. Cardiovascular risk factors prior to anthracycline exposure can increase its risk.
- Clinicians must be aware of the early onset of cardiac injury.
- Baseline cardiac evaluation, as well as clinical cardiovascular risk assessment, are mandatory.

NEW CANCER DIAGNOSIS	DURING TREATMENT	FIRST YEAR AFTER TREATMENT	LONG-TERM FOLLOW UP
Baseline cardiovascular (CV) toxicity risk assessment	- Low risk: Standard observation - Moderate & High risk: Cardiology referral for cardiovascular disease prevention	- Low & Moderate risks: Evaluation at 1 year after the end of the chemotherapy - High risk: Evaluation at 3 months + 1 year after the end of the chemotherapy	Low risk: • Annual CV risk factors assessment • Reassessment if emergence of new symptoms related to cardiac diseases Moderate risk: • Annual CV risk factors assessment • TTE* every 5 years High risk: • Annual CV risk factors assessment • TTE at years 1, 3, 5 and every 5 years thereafter

*Transthoracic echocardiography

References

1. ESC Guidelines on cardio-oncology *European Heart Journal*, ehac244
2. Doxorubicin induces cardiotoxicity through upregulation of death receptors mediated apoptosis in cardiomyocytes, *Scientific Report*