2018
VIENNA, AUSTRIA
SUPPORTIVE CARE MAKES EXCELLENT CANCER CARE POSSIBLE

SAVE THE DATE: 28-30 JUNE 2018

MASCC/ISOO
ANNUAL MEETING ON SUPPORTIVE CARE IN CANCER

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EARLY INDEPENDENT PREDICTION OF ANTHRACYCLINE-INDUCED CARDIOMYOPATHY BY N-TERMINAL PRO-BRAIN NATRIURETIC PEPTIDE

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AGENDA

- Introduction
- Aim & Objectives
- Methods
- Results & Discussion
- Conclusions

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INTRODUCTION

- Benefits of antitumoral therapy with anthracyclines may be deemed by their cardiac toxicity
- Anthracycline-induced cardiomyopathy (AIC) seriously affects prognosis
- International guidelines define the AIC by
  a) decreasing of left ventricular ejection fraction (LVEF) < 50% or a decline of more than 5% of LVEF if baseline value is less than 50% or
  b) the decrease of LVEF with more than 10 units or with more than 20% from baseline value


Early prediction of anticancer therapy cardiotoxicity is essential for applying proper preventive and supportive therapeutic strategies

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AIM & OBJECTIVES

Dynamic evaluation of plasma N-terminal fragment of pro-brain natriuretic peptide (NT-proBNP) in predicting cardiac dysfunction assessed by transthoracic 2D echocardiography (2D-TTE) → in patients with cancer and early onset asymptomatic anthracycline-induced cardiomyopathy (AIC), i.e. before LVEF decrease to be diagnostic for early onset asymptomatic AIC
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METHODS

- Prospective study of 68 patients with cancer treated with anthracyclines, 27 (39.7%) men, mean age 56.6±10.2
- Thirty eight (55.9%) patients had breast cancer, 21 (30.9%) patients had lung cancer, and 9 (13.2%) patients had malignant lymphoma.
- Patients with an estimated glomerular filtration rate (eGFR) < 60 mL/min were excluded
  → followed up for 6 months

- Diagnosis of AIC was set at 6 months by:
  - decreasing of left ventricular ejection fraction (LVEF) < 50% or with more than 10 units or 20% from baseline

- NT-proBNP (electrochemiluminescence on a Cobas e411 analyzer Roche Diagnostics)
- 2D-TTE (ALOKA SSD-4000SV Prosound) were assessed:
  - at enrolment
  - at 3 month
  - at 6 months
罹患结果及讨论

- 15（22.1%）患者于6个月的蒽环类药物治疗后发展为AIC - group 1
- 53（77.95%）患者未发展为AIC - group 2

- 在3个月时，与group 2相比，group 1患者的NT-proBNP显著更高

<table>
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<tr>
<th>组别</th>
<th>NT-proBNP（pg/mL）</th>
<th>P值</th>
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<tr>
<td>group 1</td>
<td>121.0（119.8; 140.8）</td>
<td>0.0001</td>
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<tr>
<td>group 2</td>
<td>97.7（75.5; 111.7）</td>
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- 左室舒张功能不全（LVDD）在group 1（93.3%）显著高于group 2（37.7%），P = 0.0002

- 新检测的LVDD在3个月时具有60%的敏感性和77%的特异性，用于预测AIC在6个月
RESULTS & DISCUSSION

- NT-proBNP at 3 months proved accurate in predicting asymptomatic AIC at 6 months [area under the receiver operating characteristic curve (AUC) = 0.845, 95% Confidence Interval (CI): 0.735-0.954, $P = 0.0001$]

NT-proBNP assessed at 3 months above a cut-off = 118.5 pg/mL was an independent predictor of AIC at 6 months
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CONCLUSIONS

- In the early onset asymptomatic anthracycline-induced cardiomyopathy
  - increased NT-proBNP levels at 3 months accompanied by
  - the new developed left ventricular diastolic dysfunction at 3 months preceded the decrease of left ventricular ejection fraction as diagnostic for anthracycline cardiomyopathy

- Plasma **NT-proBNP after 3 months** of anthracycline therapy higher than a **cut-off level of 118.5 pg/mL** was an **early independent predictor** of the occurrence of **anthracycline-induced cardiomyopathy** at 6 months of therapy