Trends in Cardio-Oncology: Biomarkers vs. Imaging
The 2012 ICOS Annual Meeting

The sixth annual meeting of the International Cardioncology Society (ICOS) brought together more than 130 participants from 23 countries. In line with the educational goals of the society, key topics discussed late September in Milan/Italy included cardiological implications of oncological treatments and the elimination of cardiac disease as a barrier to optimal cancer therapy.

By Carlo M. Cipolla, MD and Daniel J. Lenihan, MD, ICOS

Research opportunities arising from looking at cardiology in approximation with oncology are manifold, explained Giuseppe Curigliano MD, PhD. His presentation focused on the latest cardiac-related results from international trials of trastuzumab. They point towards a stable rate of cardiotoxicity over many years after initial detection. This data emphasizes that the rate did not rise progressively over years, and suggests the issue may be well managed given today’s increased awareness of cardiotoxicity with trastuzumab combinations. 1 Dr. Curigliano detailed his contributions to a European Society of Medical Oncologists (ESMO) guideline on the management of cardiotoxicity during chemotherapy. 2

Giorgio Minotti, MD described data about the one exact mechanism for anthracycline-related cardiac toxicity, and suggested a strategy for reducing these effects. 3 The biology of the HER receptor family in the myocardial cell is unique, said Douglas Sawyer, MD, PhD; current anti-HER2 therapy, such as trastuzumab, appears to be responsible for some occurrences of cardiotoxicity. According to the expert, this receptor mechanism provides important insight into the survival and repair mechanisms with the cardiac cell. This has led to the development of potentially useful therapy for cardiac dysfunction by enhancing cardiac repair. 4-5

Daniela Cardinale, MD, PhD presented her group’s data on the detection and treatment of “late” cardiotoxicity and expected outcomes: undetected by typical means, anthracycline toxicity can be managed effectively by a proactive biomarker approach with troponin I (and BNP in selected situations). 6-7

ICOS 2013, 2 – 4 December, Sarawak, Malaysia
Cardiovascular Trends

“Ulla septiformus Sollers quatenus/quatinus cassio, oro. Mus Inclino tollo Inquam, indutiae eia calx intemporaliter, loco te ut glorificus Voveo res for-taem Nivellensem mico.”

Carlo M. Cipolla, MD

Apostolia Tsimberidou, MD, PhD described strategies for anti-angiogenic therapies in oncology treatment trials and initial positive results. There are areas where these therapies have not fulfilled their promise, she said, and indicated areas for which these drugs are likely to be developed in the future. 8-9

Role of cardiac biomarkers

Maria Teresa Sandri, MD focused on research about high sensitivity and specificity of troponin I assays; data is also available for NT-proBNP and BNP for defined clinical settings. This laboratory overview solidified the understanding of useful application during chemotherapy. 10 Marco Giorgio, MD, PhD demonstrated data about the use of mitochondria-based biomarkers to detect cardiotoxicity. The real injury occurring in many situations, however, is based on damage to the mitochondria. A new marker is being developed by the speaker’s group that may prove to be useful in clinical detection and management of cardiotoxicity. 11

Current research on the usefulness of M AO inhibitors for cardioprotection during chemotherapy. Results presented by Fabio Di Lisa, MD suggest the well-known therapy may actually play a role in minimizing toxicity from newly developed chemotherapies. 12-13

The collaboration between cardiologists and oncologists was pivotal in the lecture of Fabio Ciceri, MD. Common cardiovascular issues may be encountered during high dose chemotherapy and stem cell transplantation, including heart failure, electrocardiographic changes, and biomarker abnormalities. Typical cardiac safety signals can develop during aggressive treatment, and careful and close collaboration is crucial. 14 Thomas Suter, MD outlined extensive experience with the detection and description of cardiotoxicity in major clinical oncology trials. Cardiology can assist the developing research in oncology; in HERA and further breast cancer treatment trials, the expert showed compared image quality to echo and MUGA, with unique features of MRI demonstrated in clinical cases. The final session concluded with a host of thought-provoking presentations: Daniel Lenihan, MD presented data from a multi-center observational trial utilizing cardiac biomarkers and echocardiography to detect cardiac toxicity in a manner suitable for routine. Dr. Lenihan showed highly defined cardiac data and biomarkers in patients undergoing anthracycline-based chemotherapy, suggesting a prominent presence of undetected cardiac disease in these populations. 15 Strategies to optimize the management of cardiac disease during aggressive treatment are a major goal; how can cardiac safety be maximized without unduly impairing the ability to conduct an oncology trial? John Finkle, MD described the current data gathering methods and their limitations as well as advantages. Michael Fisch, MD explained how oncologists and cardiologists can best bring together their concerns to improve patient outcomes: long-term synergies can best obtained by taking into account the goals of each discipline. 16 JoAnn Lindenfeld, MD summarized a broader perspective on how professional societies can interact effectively in cases where overall therapy plans are not aligned. She described effective strategies to mold consensus. 17 Göury Bhattacharyya, MD from India summarized the challenges of caring for oncology patients in an underdeveloped region, and the concept of cardiac toxicity as a luxury issue. He presented a host of real life difficulties to consider whenever clinical recommendations are made. 18

Dr s. Lenihan and Cipolla revealed an online provider-based survey that indicates how important cardiac disease may be in oncology patients and how traditionally held beliefs about cardiotoxicity are based on minimal data. Provider feedback documented by the survey highlights the need to continue developing good research information that can be effectively applied to improve patient care. 19

The closing discussion session made it obvious that cardiac side effects, such as heart failure, can prevent patients from continuing to receive optimal cancer treatments, and they can impact long-term survival. “Many cardiac side effects can be more effectively managed, and in some cases prevented, with currently available therapies,” said Dr. Lenihan. “Much more investigation is needed, but it is critical that we raise the awareness among oncologists and cardiologists to...
ensures optimal management of these patients."

“A bright future for cardioncology”

Enthusiasm for the field was evident at the conference which had been opened by ICOS co-founder Dr. Carlo Cipolla. The development of a broadly represented consensus document providing careful recommendations for investigators and practitioners is underway, and the 2013 annual meeting will be held in conjunction with the CSRC (Cardiac Safety Research Consortium) in Washington D.C on December 12 – 14. This year, the organizers’ goal for the meeting is to develop a consensus on the prevention, detection, and treatment of cardiac toxicity of cancer treatment based on a careful data/literature review. Plans are to conclude with a summary recommendation regarding the evaluation of cardiac safety during drug development (in particular, cancer therapy), the identification and optimal management of cardiac disease in cancer patients, and the best method for surveillance and prevention of cardiac disease in cancer survivors. A concise document will be prepared in the months preceding the meeting and controversial or uncertain areas will be presented at the meeting for discussion. A summary document will be finalized at the meeting and subsequently submitted for publication.

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Bibliography


Further Information

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