

The London Postgraduate Course in Heart Failure

The New Heart Failure Doctor

Heart Failure (HF) is the final common pathway of most cardiac conditions, either acquired or congenital. With the enormous progress in the diagnosis and management of HF due to imaging, novel drugs and technical developments, cardiologists specializing in HF, do require extensive training not only clinically, but also in imaging, pharmacotherapy, pacemakers and implantable cardioverter defibrillators (ICDs), assist devices, transplantation, and post-transplantation care (**Fig. 1**).

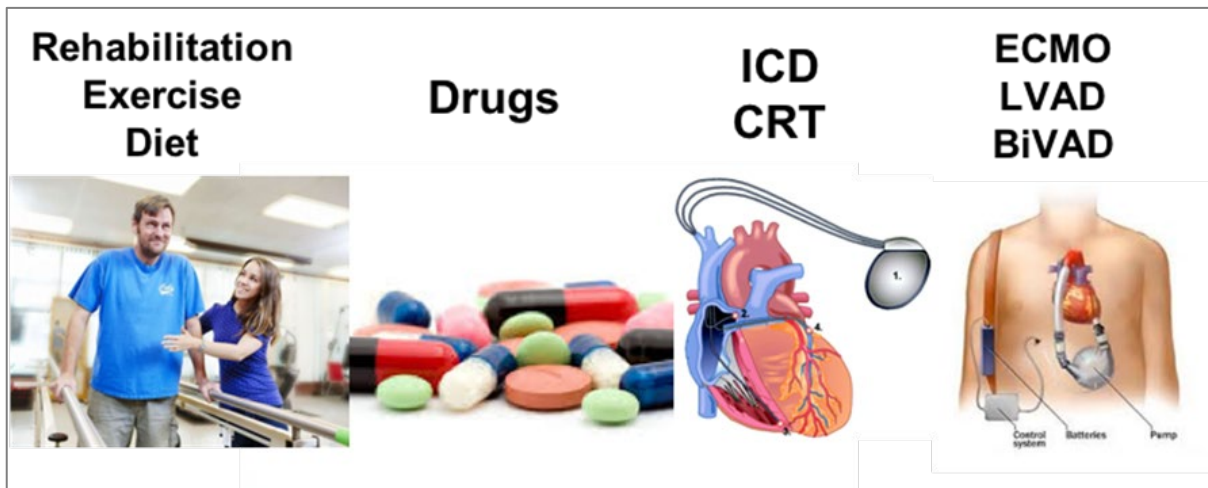


Figure 1: The spectrum of heart failure management today

The London Postgraduate Course on Heart Failure (PCHF)

The *Zurich* and *London Heart House* offer a comprehensive postgraduate course on HF with 6 modules on the spectrum of HF and its management over two years. The concept, developed in 2014 in Zurich, has been refined and improved, to become the prime course in which the *ESC Heart Failure Association (HFA)* collaborated. Of the large number of applicants, 65-70 from over 20 countries are accepted (**Fig. 2**), in the 2nd edition 9 from Switzerland (**Fig. 3**). As part of their assessment, delegates have to present challenging cases from their centres and pass the exams after each module.



Figure 2: The 2nd London Postgraduate Course on Heart Failure Management at the Hallam Conference Center in London with participants on site.



Figure 3: Course participants come from 23 countries from four continents: Here students from Switzerland and Italy.

Module 1: Assessment and Diagnosis

Module 1 started on epidemiology of HF presented by Aldo Maggioni. The diagnosis based on the *2021 ESC Guidelines on the Management and Treatment of Acute and Chronic Heart Failure*, was reviewed by its chairwoman, Theresa McDonagh. The importance of NTproBNP was stressed by Christian Müller, while Shouvik Haldar demonstrated subtle ECG changes in HF. Finally, Jeroen J. Bax stressed the central role of echo and multimodality imaging. Stephan Rosenkranz ran an outstanding hands-on session with a simulator on haemodynamics of right heart catheterization.

Echo is often limited in assessing LV function and perfusion which can be overcome using contrast as outlined by Roxy Senior with practical examples presented by Alison Duncan and Rajdeep Khattar.

Dudley Pennell presented diffusion tensor imaging using advanced MRI allowing for in depth tissue characterization of myocardial performance. MRI and genetic testing, allow in-depth characterization of cardiomyopathies, risk stratification and individualized use of drugs and ICDs as outlined by Sanjay Prasad. Finally, adult congenital heart disease is complex, but its basics have to be known by any HF physician as stressed by Aidan Bolger and Michael Gatzoulis.

Module 2: Different Forms of Heart Failure

Despite Omicron, Module 2 took place in November 2021 in hybrid format. The 2021 ESC Guidelines, phenotyped HF as HFrEF, HFmrEF (now mildly reduced EF) and HFpEF. How management was optimized by initially lumping and later splitting different HF populations was reviewed by Thomas F. Lüscher, while the ESC Guidelines co-chair Marco Metra summarized recommendations on HFrEF, and Burkert Pieske provided a definition of HFpEF. A particular focus were comorbidities, i.e. obesity, diabetes, renal dysfunction, discussed by world-class trialists, i.e. Milton Packer, John McMurray, Christoph Wanner and Dipak Kotecha. Further, Benjamin Meder and Jens Mogensen discussed genetics of cardiomyopathies and their outcomes and management, while Claudio Rapezzi and Ashutosh Wechalekar reviewed novel treatments for cardiac amyloidosis.

Module 3: Treatment and Follow-up of Heart Failure

The ongoing pandemic then led to a fully remote Module 3 broadcasted from the TV studio of the *Zurich Heart House* with LIVE moderation by Thomas F. Lüscher, Christoph Wanner, Gerhard Hindricks, Bettina Heidecker and Giovanni Camici. Heart-kidney axis and renal injury were discussed by Wilfried Mullens, Bertram Pitt and Faiez Zannad, while indications for CRT/ICD were discussed by Mads Kronborg and Cecilia Linde. With Covid-19, myocarditis gained a lot of interest as outlined by Bettina Heidecker and Rakesh Sharma. Ulf Landmesser and Thomas Thum looked in the future of RNA-based therapeutics.



Figure 4: Supervised implantation of a CardioMems^R device on the simulator (left) and advanced echo training with simulated patient cases at the Abbott Advanced Technology Center in Brussels.

Module 4: Catheter Ablation and Devices in Heart Failure

Module 4 provided hands-on training on simulators for device implantations, electrophysiology and virtual reality in Abbott's Advanced Technology Center in Brussels (Fig. 4). Programming and optimisation of CRT using echo was trained with simulated cases. LIVE transmissions from Leipzig and Prague on catheter ablation and pacemaker implantation provided practical insights. Josef Kautzner and Gerd Hindricks discussed the potential of novel pulsed field ablation for atrial fibrillation using cold electroporation allowing for fast, reliable and safe procedures. Further, Sergio Richter performed an impressive LIVE CRT implantation, while Wilfried Mullens reviewed its optimisation. It ended with inspirational talks on career development, HeartTeams and the art of writing scientific papers by Wilfried Mullens, Francesco Maisano, Filippo Crea and Giovanni Camici.



Figure 5: Right: Demonstration of clipping the tricuspid valve. Left: Hands-on training in the echo lab with Rajdeep Khattar at the Royal Brompton Hospital.

Modul 5: Multidisciplinary Procedures in Heart Disease and Heart Failure

Aortic stenosis (AS), mitral regurgitation (MR) and tricuspid regurgitation (TR) are major causes of HF requiring a competent *HeartTeam*. The fascinating anatomy of aortic valve and conduction system was demonstrated by Yen Ho, followed by lectures on imaging for AS by Jeroen Bax, on patient selection by Thomas Pilgrim and ESC Guideline recommendations by Victoria Delgado. MR was discussed by experts such as Bernard lung, Georg Nickenig and Alex Vahanian. Right HF and TR are next frontiers as predicted by Stephan Rosenkranz and Georg Nickenig. In a *How-we-do-it* session Michel Zuber demonstrated ultrasound-guided interventions, while Francesco Maisano provided a Live-in-a-Box of surgical mitral repair. Cardiogenic shock is another frontier where mechanical circulatory support (MCS) is a hope as pointed out by Holger Thiele, Simon Davies, Christian Hassager and Patrick Hunziker. Finally, cardio-oncology was reviewed by Alex Lyon, Thomas Suter and Teresa Lopez Fernandez. Lastly, hands-on imaging was taught in the newly opened *Royal Brompton Diagnostic Center* with cutting edge echo by Rajdeep Khattar (**Fig. 5**), Cemil Izgi demonstrated CMR cases, Saeed Mirsadraee and Tom Semple reviewed CT and Richard Underwood and Kshama Wechalekar Nuclear/PET.

Module 6: Acute and Advanced Heart Failure and Graduation Ceremony

The last module focussed on acute and advanced HF and featured again a prominent faculty, with Piotr Ponikowski, Alexandre Mebazaa, Faiez Zannad, Mandeep Mehra among others with lectures on the acute and long-term management of acute HF. Advanced heart failure involves MCS for bridge to recovery or transplant or destination therapy. The module ended with sessions on heart transplantation, palliative care and future perspectives in cardiology.

The graduation ceremony took place at the *Royal Institute of British Architects* (RIBA) together with faculty members and the alumni community of the PCHF London (**Figure 6**).



Figure 6: Proud graduates received the Certificate in Heart Failure Management during the ceremony at the Royal Institute of British Architects.

Zurich and London, 26 October 2022