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CARDIOPULSE

The ESC Working Group on Cardiovascular Regenerative and Reparative Medicine

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Cardiovascular Reparative Medicine in perspective in the ESC community

The **15 Working Groups of the ESC** are the scientific backbone of the ESC and have been created to provide their extensive expertise to specific areas of cardiovascular medicine. Together, they contribute to the mission of the ESC: *to reduce the burden of cardiovascular disease.*

This year, the Working Groups represent more than 7,100 ESC members, with a growing community of younger members (2,200) under 40 years of age. Education & research are two of the main focus areas of the Working Groups, with the delivery of high-quality educational courses, annual meetings and webinars. As the European references in their fields of expertise, the Working Groups regularly publish papers, consensus documents, handbooks, and journals.

They are, without question, a driving force within the ESC.

Prof. Cecilia Linde, ESC Vice-President for Working Groups

Find out more online here https://www.escardio.org/Working-groups online here.

In 2015, during the 12th International Symposium on Cardiovascular Regeneration and Repair, an international academic group of scientists and researchers joined together under the Transnational AllianCe for regenerative Therapies In Cardiovascular Syndromes (TACTICS) consortium.[1] Facing the need for a critical reflection on the past, present, and future of cardiovascular reparative medicine (CRM),[2] one of the aims of TACTICS was to attain the institutional coverage of the main cardiovascular scientific organizations. Thus, and with the invaluable help of the ESC Presidency (Dr Fausto Pinto) and of the Council on Basic Cardiovascular Science (Dr Lina Badimon), a new ESC Working Group (WG) dedicated to CRM was created and approved during the General Assembly of the ESC Board at the 2017 ESC Congress in Barcelona.

The ESC WG on Cardiovascular Regenerative and Reparative Medicine is among the Constituent Bodies of the ESC and under its administration. It is based on the same five pillars of all ESC Working Groups and Associations: membership, congresses, education, research, and advocacy. The WG is composed of a Chairperson, a Vice-Chairperson, a Secretary and Treasurer, and a Nucleus formed by eight ordinary nucleus members plus two ex-officio and two affiliated non-voting nucleus members (the WG composition can be found at: https://www.escardio.org/Working-groups/Working-Group-on-Cardiovascular-Regenerative-and-Reparative-Medicine) (*Figure 1*).

The mission of this ESC WG is to improve our knowledge on the pathobiology of the failing cardiovascular system, therefore facilitating the development of biological, tissue engineering, and device-based therapies to reverse or repair this loss of cardiovascular function. This mission will only be accomplished when an efficient synergy between basic discoveries and translational clinical efforts are obtained, by:

- Establishing realistic priorities and goals of discovery and development.
- Redefining cardiovascular reparative advanced therapies.
- Attaining and disseminating an umbrella agreement on a common strategy to reinforce the field.

Specific objectives of the WG include:

- To promote the progress in regenerating injured human organs, by leveraging collective efforts in basic discoveries, in the creation of better reparative products, in better preclinical models, and in large clinical trials that will lead to rapid advances in the search for effective therapies in humans.
- To promote a network of professionals, clinicians, and scientists involved in the development and validation of advanced therapies for cardiovascular repair.
- To collaborate with the Council on Basic Cardiovascular Science and other ESC Working Groups in order to promote translational research and solid eventual clinical applications of advanced therapies.
- To regularly create and publish position papers and consensus documents summarizing the collective point of view of leading experts in the field, covering the spectrum from basic discoveries to translational validations and to clinical trials.

Figure 1 Members, ESC Working Group on Cardiovascular Regenerative and Reparative Medicine & invited assistants during the first scientific retreat, at the European Heart Agency in November 2018. Invited key opinion leaders: Lucio Barile (2nd from left), Rosalinda Madonna (3rd from right), Emily Sena (7th from left), Felipe Prosper (5th from right), Roberto Bolli (3rd from left), Leyla Kragten-Tabatabai (6th from left) and Martina Schuessler (5th from left).

- To address regulatory hurdles and funding strategies, outline the main opportunities and challenges of the field and providing evidence-based recommendations to guide future lines of research.
- To organize and propose special sessions at the most important congresses, as well as webinars, scientific meetings, courses, and ESC endorsed symposia.

In the last 2 years, the WG on Cardiovascular Regenerative and Reparative Medicine has been steadily growing to reach 165 members. Also, network connections have been established between the WG and other ESC Working Groups (e.g. the WG on Cellular Biology of the Heart), Councils (e.g. the Council on Basic Cardiovascular Science), and Associations (e.g. Heart Failure Association of the ESC).

Two series of successful ESC webinars on 'New Concepts in Cardiovascular Regeneration' have been co-developed in collaboration with the Scientists of Tomorrow group of the ESC. Furthermore, joint sessions have been celebrated under the auspice of the ESC at several conferences (the 16th International Symposium on Cardiovascular Regeneration and Repair, the ESC Annual Congresses, and others).

The WG Nucleus has met on seven occasions and has also twice gathered together with worldwide renowned key opinion leaders in 2-day scientific retreats at the European Heart Agency to define the future of CRM. The first retreat produced a Current Opinion paper which summarizes the current status of the CRM field in terms of products, animal studies, and clinical trials. The second retreat was focused on the therapeutic potential of myocardial regeneration, reflecting on the most realistic roadmap for an eventual reparative product to reach the standard-of-care.

Although recent discoveries and novel treatments have substantially improved the length and quality of life of patients with cardiovascular diseases, several conditions still pose a grim prognosis (e.g. advanced heart failure), with millions of patients worldwide on optimal medical treatment but with no curative alternatives. Although 'myocardial regeneration' remains elusive, the improvement of myocardial perfusion, the attenuation of adverse remodelling, and the possibility to modulate immune-inflammatory responses to injury are plausible therapeutic targets of CRM, that deserve further investigation and in-depth collaboration between research groups.

Therefore, we would like to encourage all basic and clinical scientists with interest in this field to become members of our WG, complying with the ESC Working Groups submission and approval requirements. By increasing the number of researchers and research groups and with a structured and collaborative effort, the aforementioned WG mission will be accomplished.

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References are available as supplementary material at *European Heart Journal* online.

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The voice of young cardiologists

Unmet needs in acute cardiovascular training for young cardiologists in Europe are discussed by members of the Young National Ambassadors of the Association of Acute CardioVascular Care

Introduction

The clinical profile of patients with cardiovascular disease has significantly changed over the last 20 years.[1–3] The ageing of European populations and improved therapies for chronic cardiovascular diseases have led to increasing numbers of elderly patients with multiple comorbidities requiring acute cardiovascular care.[1–13] Furthermore, invasive cardiac procedures have become a cornerstone of cardiac treatment strategies, requiring comprehensive periprocedural care.[10,11,14–17] Consequently, the current generation of young cardiologists are faced with acute, complex clinical scenarios, and the need for advanced acute cardiovascular training has arisen.

The European Society of Cardiology (ESC) anticipated these developments and included acute cardiovascular care training in the 2013 Core Curriculum for the General Cardiologist.[18] However, the current implementation of the Core Curriculum guidelines in this field of training among ESC countries is unknown. To map the current status of training and needs of trainees, the Young National Ambassadors (YNA) of the Association of Acute CardioVascular Care (ACVC), ESC, conducted a survey addressing self-assessed knowledge, skills and confidence of cardiology trainees and young cardiologists in acute cardiovascular care, as well as their exposure and access to focused training opportunities.

A survey was conducted between March 2019 and July 2019. Fifty-five best-match and eight open questions were structured into three domains: baseline characteristics, technical skills, and non-technical skills.

- Baseline characteristics questions included age, gender, and details of cardiology training.
- Technical skills questions mainly covered the third level of the Core Curriculum competence and referred to confidence in performing specific invasive procedures, confidence in managing patients in specific acute clinical settings, access to simulation-based training, and attitude towards further acute cardiovascular care training.[18]
- Non-technical skills questions were related to leadership and teamwork.

A total of 614 young doctors from 39 countries participated in the survey.

The median age of the respondents was 31 years with 55% of the surveyed being males. The majority of the respondents had already completed their training or were 4th and 5th year cardiology residents.

Table 1 Rate of self-confidence in technical skills among the respondents

Level of self-confidence	Procedures	Respondents' self-confidence at performing the procedure, *n* (%)[a]
Very comfortable	1. Non-invasive mechanical ventilation (management)	374 (70.4)
	2. Central venous catheter	368 (68.4)
Fairly comfortable	3. Temporary pacemaker	269 (50.1)
	4. Invasive mechanical ventilation (management)	259 (48.4)
Not comfortable	5. Endotracheal intubation	209 (38.9)
	6. Transoesophageal echocardiography	207 (38.6)
	7. Swan-Ganz parameters (results interpretation)	198 (37.0)
	8. Short-term mechanical circulatory support (management)	165 (31.9)
	9. Renal replacement therapy (management)	151 (28.7)
Least comfortable	10. Pericardiocentesis	147 (27.3)

[a]Percentage of total responses to particular question.