

Proceedings of the signature series event of the international society for cellular therapy: “Advancements in cellular therapies and regenerative medicine in digestive diseases,” London, United Kingdom, May 3, 2017

RACHELE CICCOCIOPPO¹, CLAUDIA C. DOS SANTOS², DANIEL C. BAUMGART³, GIUSEPPINA C. CANGEMI⁴, VINCENZO CARDINALE⁵, CAROLINA CIACCI⁶, PAOLO DE COPPI⁷, DEBASHIS HALDAR⁸, CATHERINE KLERSY⁹, M. CRISTINA NOSTRO¹⁰, MICHAEL OTT¹¹, LORENZO PIEMONTE^{12,13}, ALICE A. TOMEI¹⁴, BASAK UYGUN¹⁵, STEFANIA VETRANO¹⁶ & GIUSEPPE ORLANDO¹⁷

¹Gastroenterology Unit, Department of Medicine, University of Verona and AOUI Borgo Roma, Verona, Italy, ²Interdepartmental Division of Critical Care Medicine, Keenan Research Centre for Biomedical Science and St. Michael's Hospital, University of Toronto, Toronto, Canada, ³Inflammatory Bowel Disease Center, Department of Gastroenterology and Hepatology, Charité Medical School, Humboldt, University of Berlin, Berlin, Germany, ⁴Laboratory of Gastroenterology, Department of Medicine, University of Pavia, I.R.C.C.S. Policlinico San Matteo Foundation, Pavia, Italy, ⁵Department of Medico-Surgical Sciences and Biotechnologies, Sapienza University of Rome, Rome, Italy, ⁶Gastrointestinal Immunology Center for the Study of Celiac Disease, Inflammatory Bowel Disease and Food Intolerance, Baronissi Campus, University of Salerno, Salerno, Italy, ⁷University College London Institute of Child Health, Great Ormond Street Hospital, London, United Kingdom, ⁸National Institute for Health Research Birmingham, Birmingham Liver Biomedical Research Unit and Centre for Liver Research, University of Birmingham, Birmingham, United Kingdom, ⁹Service of Clinical Epidemiology & Biostatistics, I.R.C.C.S. Policlinico San Matteo Foundation, Pavia, Italy, ¹⁰McEwen Centre for Regenerative Medicine, Toronto General Hospital Research Institute, UHN and Department of Physiology, University of Toronto, Toronto, Canada, ¹¹Hannover Medical School, Twincore Centre for Experimental and Clinical Infection Research, Hannover, Germany, ¹²Diabetes Research Institute (SR-DRI), IRCCS San Raffaele Scientific Institute, Milan, Italy, ¹³Vita-Salute San Raffaele University, Milan, Italy, ¹⁴Diabetes Research Institute, Biomedical Engineering, University of Miami Miller School of Medicine, Miami, Florida, USA, ¹⁵Center for Engineering in Medicine, Massachusetts General Hospital and Harvard Medical School, Boston, Massachusetts, USA, ¹⁶Department of Biomedical Sciences, Humanitas University, Rozzano, Italy, and ¹⁷Wake Forest University School of Medicine, Winston Salem, North Carolina, USA

Abstract

A summary of the First Signature Series Event, “Advancements in Cellular Therapies and Regenerative Medicine for Digestive Diseases,” held on May 3, 2017, in London, United Kingdom, is presented. Twelve speakers from three continents covered major topics in the areas of cellular therapy and regenerative medicine applied to liver and gastrointestinal medicine as well as to diabetes mellitus. Highlights from their presentations, together with an overview of the global impact of digestive diseases and a proposal for a shared online collection and data-monitoring platform tool, are included in this proceedings. Although growing evidence demonstrate the feasibility and safety of exploiting cell-based technologies for the treatment of digestive diseases, regulatory and methodological obstacles will need to be overcome before the successful implementation in the clinic of these novel attractive therapeutic strategies.

Key Words: *digestive diseases, immune tolerance, mesenchymal stromal cells, tissue regeneration*

Introduction

The Signature Series Event “Advancements in Cellular Therapies and Regenerative Medicine for Digestive

Diseases” was held as a pre-meeting of the 25th International Society for Cellular Therapy annual congress in London, United Kingdom, May 3, 2017. This was the first workshop organized under the

Correspondence: **Rachele Ciccocioppo**, MD, Gastroenterology Unit, University of Verona and AOUI Borgo Roma, Piazzale LA Scuro 10, 37134 Verona, Italy. E-mail: rachele.ciccocioppo@univr.it

(Received 25 November 2017; accepted 1 December 2017)

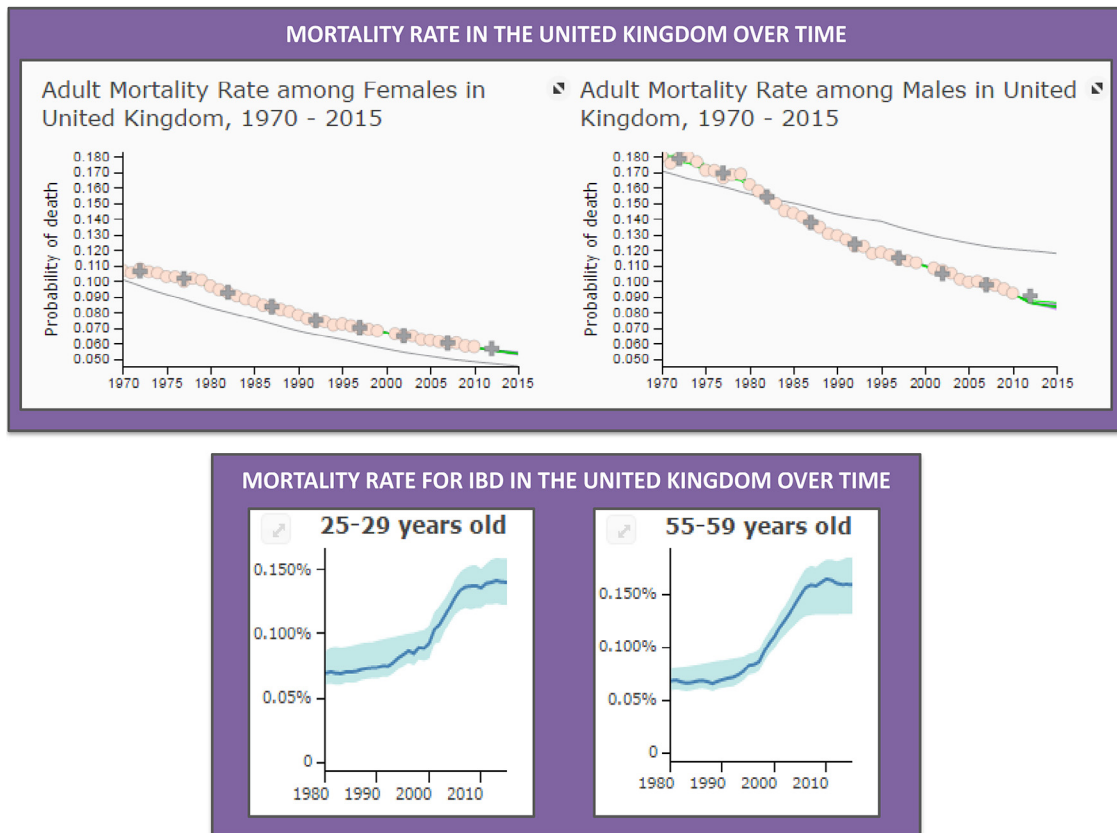


Figure 1. Mortality rate in the United Kingdom over time. During the past 45 years, we witnessed a significant decrease of mortality, as showed by the data from both female and male adult populations in the United Kingdom (upper panel). By contrast, in the past 30 years, the mortality rate in inflammatory bowel disease (IBD) has risen (lower panel). Data are from <http://www.healthdata.org/gbd>.

auspices of the Society that was fully dedicated to the application of stem cell and tissue engineering technologies to digestive diseases. The symposium convened opinion leaders from three continents and seven countries, with a common interest in developing cell therapy platforms and regenerative medicine (RM) technologies for clinical application in liver diseases and diabetes, as well as illnesses affecting the digestive tract. The event represented an opportunity to share knowledge and experience and promote understanding of the supporting technologies and potential target populations, with the overarching goal of enabling the clinical implementation of promising cell- and RM-based therapies. This article succinctly reports the topics that were discussed and the debate generated as a result.

Background

Prof. Carolina Ciacci: the global impact of digestive diseases

The Signature Series Event was opened by Professor Ciacci, who contextualized the global impact of digestive diseases. According to <http://vizhub.healthdata.org>, in the past 25 years, human life expectancy has increased

by more than 5 years worldwide, mainly due to a significant decrease of mortality for cardiovascular diseases and cancer (Figure 1, upper panel). By contrast, improvement of management of digestive diseases, including colorectal cancer, accounts for an average increase of life expectancy from 1990 to 2015 of only 0.1 year. In addition, the prevalence of a number of disorders affecting the digestive system, mostly those characterized by a chronic inflammatory process, has undergone a significant increase not only because a growing number of patients are now correctly diagnosed but also by virtue of a real spread in the general population [1]. Among the illnesses showing an increased frequency are inflammatory bowel diseases, including Crohn disease (CD) and ulcerative colitis [2], and other autoimmune conditions affecting the intestine, such as celiac disease [3]; the liver, such as autoimmune hepatitis [4]; and the pancreas, with autoimmune pancreatitis [5] and type I diabetes [6]. These disorders are expected to reach epidemic levels in the near future and, as their peak of incidence is in the young adult age-group with consequent impairment of patient's work productivity, the social and economic impact may be disastrous. Moreover, recent pooled

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