Lessons learned and a look to the future: the Chronic Ischemic Heart Disease (CICD) Pilot Registry

L. Kristin Newby

Division of Cardiology and Duke Clinical Research Institute, Duke University Medical Center, Durham, North Carolina, USA

Online publish-ahead-of-print 21 September 2015

This editorial refers to ‘EURObservational Research Programme: the Chronic Ischaemic Cardiovascular Disease Registry: Pilot phase (CICD-PILOT)†, by M. Komajda et al., on page 152.

In Europe, as in the USA, the use of prospective, practice-based longitudinal registries of hospitals and their cardiovascular disease patients has become a mainstay in the arsenal of quality improvement. To measure practice is to understand practice, and to identify where the gaps in delivery of quality care exist, as benchmarked against relevant practice guidelines and performance measures, and their effects on outcome is fundamental to improving practice and patient outcomes. Imple-mented and managed under the auspices of the major cardiovascular societies, which also sponsor the processes for development of guidelines and performance measures, and with guidance from experienced and representative executive leadership and steering committees, these registries provide objective and carefully collected and curated data that are the foundation of the ‘cycle of quality’. Beginning with the first EuroHeart Survey in 2000, the European Society of Cardiology (ESC) has and continues to sponsor many such registries, collecting data from practices throughout Europe and across the spectrum of cardiovascular disease that inform the practicing community about not only the epidemiology of cardiovascular disease, but also how it is being managed.

One unique challenge for Europe as it seeks to understand and improve cardiovascular practice and cardiovascular outcomes is the immense heterogeneity, both clinically (e.g. population demographics, prevalence of risk factors for cardiovascular disease) and operationally (e.g. healthcare financing and delivery systems, overall economies, access to care, capabilities of healthcare facilities), that exists across the countries that its guidelines primarily serve. Even if there were similarly low levels of performance with respect to the application of guidelines-based care in each country, the underpinnings of those gaps, their effects on clinical outcomes in the setting of varying patient profiles and the solutions needed to improve practice and outcomes can vary widely, making systematic central approaches or performance improvement techniques problematic. In this light, in one of its most prescient undertakings to date, the ESC has launched the Chronic Ischemic Cardiovascular Disease (CICD) Registry, initially as a pilot to be followed by a long-term registry. When fully implemented, using a unique sampling strategy for both the selection of hospitals and with consecutive enrollment of participants, it will provide a balanced representation of cardiovascular epidemiology and practice within and across countries and regions of Europe as a means to understand and address the challenges of country and regional heterogeneity. Furthermore, its leaders have recognized the importance of non-coronary vascular disease as both a risk factor for underlying coronary artery disease and an important co-morbidity in influencing outcomes in chronic ischaemic heart disease. As such, it will emphasize data collection across a spectrum from acute and chronic coronary disease primary presentations to presentation with peripheral arterial disease (PAD).

In this issue of the European Heart Journal, Komajda et al. provide the first insights into the potential power of this ambitious effort in their report of the first data generated from the pilot phase of the ESC’s CICD Registry. The pilot was limited to 10 countries, reflecting four general regions of Europe (Western—France and Germany; Northern—Latvia and Lithuania; Eastern—Poland, Romania and Russian Federation; Southern—Italy, Greece and Portugal) and 100 volunteer centres distributed by country according to the population of the country in an attempt to reflect the diversity of healthcare systems and practices treating vascular disease patients in different regions of Europe. Each participating hospital contributed consecutive patients who had either non-ST-segment elevation acute coronary syndrome and underwent PCI within 72 h (n = 755), chronic stable coronary artery disease (n = 1464, of whom 933 had elective coronary intervention and 531 had no...
intervention) or peripheral arterial disease (n = 201). The cohorts who underwent intervention were enrolled in the catheterization laboratory, whereas the others were enrolled in hospitals and clinics without interventional or surgical capabilities. Although the numbers were felt to be too small to report data from the pilot by region, the pilot does provide a number of useful insights regarding the characteristics and clinical management of patients across a spectrum of atherosclerotic vascular disease treated in actual practice across Europe.

First, the good news: as reported by Komajda et al., compared with a 2005 report from the EuroHeart Survey of Stable Angina, the rates of use of aspirin (78–90%), beta-blockers (67–82%), statins (48–91%) and angiotensin-converting enzyme inhibitors/angiotensin receptor blockers (ACEI/ARBs; 40–65%) have increased dramatically. However, even accounting for expected rates of contraindications and considering that the current survey was heavily weighted to discharge prescriptions to patients after acute or elective coronary intervention, room for improvement remains and is particularly prominent for aspirin, still used in only 90% of patients surveyed.

Even in this small pilot survey, some insights into the underpinnings of the remaining modest overall gaps in care can begin to be gleaned. First, the baseline demographics and prevalence rates of co-morbidities varied widely across the different vascular disease cohorts enrolled in the pilot. Thus, the primary focus of risk factor modification and improvement in secondary prevention and how it is implemented must be tailored appropriately. Further, it is known that disparities in the application of guidelines-recommended care are related to variations in age, sex and renal function. These features varied widely across the disease cohorts in the CICD pilot, suggesting that physicians, hospitals and practices treating patients within these cohorts may need particular education, training and performance improvement efforts to avoid inadvertent biases resulting in disparities in care that may have resulted in lower than ideal overall rates of use of evidence-based medications than were observed.

The CICD pilot also clearly demonstrated that the application of guidelines-based care varied widely by disease state cohort at baseline (prior to intervention/consultation), which may reflect variations in demographic features and clinical co-morbidities. Still, it highlights substantial opportunities for improving adherence to guidelines-based care in long-term secondary prevention, as has been pointed out in other recent publications from both registries and clinical trials. Equally concerning was the observation that there was a generally widened gap towards lower rates of treatment with aspirin, ACEI/ARBs, statins and beta-blockers among PAD patients vs. the other groups after intervention/consultation. This occurred despite higher rates of diabetes, more prior revascularization, higher systolic blood pressure and fasting glucose and similar low-density lipoprotein cholesterol in the PAD group compared with the other cohorts. For the most part, this reflected systematically greater increases in use among the other three groups (Figure 1), but highlights an important missed opportunity during contact of these patients with the healthcare system to optimize the prescription of guidelines-based secondary prevention. At the same time, it is these types of observations from the CICD pilot that could be used to guide feedback and education now to improve secondary prevention among patients with PAD, the success of which could be monitored during the long-term component of CICD.

In summary, as the population ages and the prevalence of both vascular disease and clinical co-morbidities increases, the challenge to achieve high rates of treatment with evidence-based secondary prevention will only intensify. Well-conceived longitudinal registries, such as the ESC’s CICD Registry, that examine and measure cardiovascular health and healthcare delivery in the context of a complex and ever-changing healthcare landscape are an essential foundation to ensure that we continue to make progress in the fight to lessen the burden of morbidity and mortality from cardiovascular disease.

Conflicts of interest: All of my relationships with industry are publicly available at https://dcri.org/about-us/conflict-of-interest.

References
A 52-year-old male patient with past medical history most significant for recurrent unprovoked bilateral lower limb deep vein thrombosis in 2010 as well as diabetes, hypertension, and smoking. Although the patient was appropriately anti-coagulated, on warfarin, he presented with sub-massive pulmonary embolism in 2011, hence a Greenfield inferior vena cava (IVC) filter was inserted.

In 2013, he presented again complaining of exertional chest pain. Physical exam, electrocardiographic, and echocardiographic studies were unremarkable. Coronary angiography revealed non-obstructive coronary artery disease. During the study, an abnormally deployed IVC filter was incidentally noted. Subsequently, a computed tomographic venography revealed that the filter had perforated the IVC. Two legs were located in the prevertebral space, one abutted the anterior aortic wall, one leg was deeply invading the right psoas muscle, and two legs arose very close to the duodenum ending up in close proximity to the small bowel loops.

The patient had regular follow-up visits during which no abdominal symptoms have been reported and, to the date of submission of this case, no complications have been developed.

Inferior vena cava filter perforation is a complication that occurs in ~5% of patients. Incidental diagnosis is the most common presentation, but perforation of the surrounding structures (duodenum, ureters, and aorta) has been reported. Since the risk of developing complications is low in asymptomatic patients with no perforation of the surrounding structures, these patients are usually managed conservatively.

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