Bridging the Gender Gap in Coronary Heart Disease: Patients’ and Doctors’ Education – the Two Way Street

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ABSTRACT

Coronary artery disease happens to be the No 1 killer of women in Europe and the United States, despite recent mild declines in moratality rates, the incidence rates shift only to a different direction targeting more younger women, for instance.

Still, that is not what the traditional textbooks teach us, which makes us need to re-shape the standpoint of medical students and trainees of all levels, ensuing in more advanced patient education.

Besides classical lectures and small group tutorials, the emphasis must be made on Problem Based Learning cases that can help students/trainees really embrace the true message of the European Society of Cardiology guidelines stating that they only “guide”, while the specific treatment plan and options must be tailored to meet all patients needs.

KEY WORDS
INTRODUCTION

Coronary artery disease remains the leading cause of death worldwide. In a rather old-fashioned way, it is still pretty much considered a “man’s disease”, although it claims more female lives than all cancers combined together with all other diseases in the United States every year.

The situation is, regrettably, not encouraging on this side of the pond either, although recent data show women are getting equal treatment as men, in terms of medical management and invasive strategies, the decrease in mortality does not impact the improvement of incidence of acute myocardial infarction.

Still, all these changes in the cardiovascular risk landscape that is more dynamic than we wish to believe, haven’t influenced a lot the approach to teaching on coronary artery disease in our curricula. At levels of training – from medical students’, via residents to fellows in Cardiology – young doctors continue being taught what is considered the “typical angina”.

The quintessential Netter’s sketch of the man in his fifties’, climbing a couple of stairs while leaving the restaurant on a cold, windy night presenting with Levine’s sign happens to be the one that remains the hallmark of angina. Our teaching is spread further in our messages sent out to our patients, but the key questions remain being whether we as physicians see CAD as a disease of women also and do we provide for all our patients – irrelevant of gender – the equal amount of timely information.

AIM

This pilot study, conducted in two similar high-volume centers in Paris, France (Hopital Europeen Georges Pompidou) and Belgrade, Serbia (Division of Cardiology, Clinical Center of Serbia) aimed to show:

- Cardiovascular risk profiles of patients with and indication for elective and emergency coronary angiography and/or revascularization
- The degree to which patients are informed in terms of risk factors and importance of regular medical follow up visits
- The source of most accurate information and level of confidence gained to different levels of the medical services rendered through primary healthcare physician’s offices, referring cardiologists’ and University hospital setting staff (residents, fellows, attendings)
- Possibilities of improvement of different levels of medical education organized within one University hospital setting (medical students’ in Internal Medicine/Cardiology clerkships, residents’ in Internal Medicine and fellows’ in Cardiology)
- Possible pharmaco-economic benefits, as an additional sub-study
METHODS

Adopting a slightly modified scenario of the EuroHeart Surveys’ ACS 2009 Snapshot registry, during a one-week period (Sep 30 – October 6, 2013), all patients undergoing a coronary angiography in the two centers (Hopital Europeen Georges Pompidou, Paris, France and Division of Cardiology, Clinical Center of Serbia, Belgrade, Serbia), were offered to participate in a short 4-questions’ survey (Appendix 1).

Patients’ data related to coronary angiography and possible subsequent percutaneous coronary intervention were collected, per standard local centers’ protocols (CARDS).

The design of the study was approved by local Ethics Committee’s.

INTERIM RESULTS

For the purpose of the main aim of this paper related to improvement strategies of medical education, we are presenting a single-center interim results. During the 1-week period, a total of 89 patients underwent a coronary angiography in the Belgrade’s cath-lab.

Gender

Gender-wise, the majority of patients were male.
**Coronary artery disease presence**

Of the total of 89 patients and 1 re-intervention of the same patient due to early stent thrombosis in the first 48hrs following primary setting of an acute MI, 19 patients were referred from other Departments (Cardiac Surgery, Vascular Surgery, Pacemaker Center and Endocrinology), besides our Division for a catheterization including coronary angiography in the setting of aortic aneurysms (6), valvular disease requiring surgery (5), cardiomyopathies in the absence of coronary artery disease signs and symptoms (4), arrhythmia (2), ventricular assist device (1) and transplanted patients (1).

In regard to verified coronary artery disease (CAD), 65% of the patients had a verified coronary artery disease:

- 23 patients were treated with primary percutaneous coronary intervention of a culprit lesion in the setting of an acute myocardial infarction
- 24 patients were already previously treated for an MI or were revascularized prior current intervention
- 23 patients were referred for angina and a significant majority with a proof of ischemia on a stress-test resulting in confirmed CAD in 17 patients.
**Risk factors’ awareness**

More than half of patients knew to quote at least 3 risk factors.

![Pie chart showing the percentage of patients aware of risk factors.]

**Risk factors’ awareness information source**

The vast majority of the patients were informed the most by the physician from the University setting hospital, and not primary healthcare physicians’ office or referring cardiologist.

![Pie chart showing the information source.]

- **Primary Healthcare Physician**: 35
- **Referring Cardiologist**: 17
- **Hospital Trainee**: 20
- **Senior Cardiologist**: 5
**Regular follow up importance awareness**

Almost all patients have the adequate level of awareness regarding the importance of regular follow up visits.

![Pie chart showing regular follow up importance awareness](image)

- Regular FU needed: 77
- Regular FU not required: 4

**Follow Up awareness prompting**

The vast majority of the patients were informed the most by the physician from the University setting hospital, and not primary healthcare physicians’ office or referring cardiologist.

![Pie chart showing follow up awareness prompting](image)

- Primary Healthcare Physician: 63
- Reffering Cardiologist: 14
- Senior Cardiologist of this Hospital: 4
- Other: 2
DISCUSSION

Medical point of view

During the given week, the Belgrade center treated on average 30% less patients than usually, due to a local shortage of expendable material, while the Paris center suffered a technical error in the system requiring this pilot study to be repeated during November 2013.

In regard to presence of CAD and patients’ risk factors, Serbia remains a country with a high burden of cardiovascular disease, despite a slight decline in the past 2-3 years, according to latest unpublished statistical data made available for the researchers of this study.

Gender-wise, during the investigated period there were only 17 female patients, not making additional gender-disparities detailed statistical analysis worthwhile running.

The global patient awareness levels are satisfactory, bearing in mind the country’s position geo-economically, as well as insufficient funds being invested in the secondary prevention of coronary artery disease, let alone the primary prevention. The latter being mostly funded by pharmaceutical industry, but campaigns are tidal and although generally supported by the authorities can be summed up most adequately in the old Latin sentence “Una hirundo non facit ver” for their messages nevertheless important tend to remain present for a certain, limited amount of time in the media, yet not, systematically present and all-year round. The only exception to this is a non smoking ban in a majority of public places, yet not truly enforced in all public areas. Unfortunately, the best, also the most ironic example being the one of our own patients wandering around University campus in their pajamas, just in order to light a cigarette.

The importance of regular check ups and follow up visits to their Cardiologists is something patients do take seriously, yet, the concerns they voiced during conducted interviews are more regarding the current healthcare policy that impedes them in timely scheduling of follow up exams, since they cannot be referred to a University setting hospital for a follow up visit with their Cardiologist, unless previously indicated so by Primary Healthcare Physicians’ office were they can be denied a referral letter to a Cardiologist other than a local one, hence, the exam they seek (i.e.in a University center) shall not be covered by the social security/insurance. Besides the cost, this denial to referral, in turn, complicates all administrative proceedings in the case of patients who are not Belgrade city residents, yet were referred to our center according to Stent for Life procedures, so although they wish to continue being regularly seen at the Clinical Center of Serbia, they are facing administrative bans of different sorts.
On the other side, patients cannot see as often as they deem necessary a Primary Healthcare Physician (PHCP) either, for the same reform is currently increasing number of patients seen by a PHCP at the expense of the quality of exams, that is the overall impression that needs to be expressed and fought against but not in terms “patients against PHPs” or “University setting MDs against PHCPs”, but all joined against a bad system that is trying to set its roots.

Finally, although aware of importance of the follow ups, the patients would prefer being reminded by their University setting Cardiologists’ on what are considered regular follow up visits, especially, if they were treated in our Center in the setting of an acute MI. Currently, the Belgrade center does it, yet in a less formal way by Cath Lab nurses addressing a phone call – in the pressing shortage of stationary supply cuts – still, in the light of the new changes in healthcare system, it ceases to be an adequate form of reminder and apparently, the tertiary system might be forced to find another budgeting source that can be cost-effective, whether by text messages or emails, where patients would be still having the opportunity to present a form of proof that the demanded follow up visit is not just their wish, but the recommendation followed from the center that offered a costly intervention once it was needed, yet wishes to assure the long-term good results that can be only achieved by strict controls.

**Educational point of view**

The Serbian medical education system was built and relied on the French one for centuries and Serbian medicine still takes pride in the fact that her first doctors were Paris and Strasbourg students 2 centuries ago.

With the late 20th century introduction of US acquired Fellowships as a hallmark of clinical excellence, the Belgrade University’s School of Medicine introduced in 1995/96 the first English speaking curriculum, whose graduates successfully pass USMLE. Trying to meet students’ demands, the 6-year Core Curriculum shifted the 4th year Pharmacology to the 3rd year, enabling students to pass USMLE Step 1 at the same time as their US peers and not wait until completion of their basic medical training.

Bologna reform of the European education brought similar changes in France and Serbia, still, Serbian system stills has significantly higher number of hours for classical ex catedrae lectures even for clinical subjects. Yet, internships as in France are not regulated by the local law, hence Serbian students’ practical, clinical work is split in hours during the day between different clinical assignments in different Departments. Consequently, they do not have the opportunity to see through the entire day of a patient and truly follow the clinical reasoning pathway unless they return on voluntary basis later in the day or the next one – even if that
day Internal Medicine/Cardiology is not on their schedule. This way, they start to live a real hospital life only upon graduating and then only if they are accepted by a big hospital center to complete their mandatory 6-months Internship prior taking the National Board Exams.

Residents in Internal Medicine and Fellows in Cardiology have a similarly designed curricula, with mandatory clerkships in specific Departments/Divisions/Diagnostics Cabinets’. Still, the tertiary center trainees – like in the case of the Clinical Center of Serbia – actually never are allowed to leave “the mother ship” and can be summoned up by the Head of their Department/Division at any moment in case their Department/Division needs them outside the regular on call schedule. This translates into a sad fact that is more difficult to get a good 3-months training in Gastroenterology if one is a resident employed in the Division of Cardiology – although training in basic endoscopy can be precious for any one wishing to pursue a career in echocardiography – than if one was sent to Belgrade for a 4-year training from a relatively small town in Eastern Serbia. Trainees from the latter are rarely revoked their license to stay and learn, unless during holidays season.

With all this said, our recommendation for teaching in Cardiology – at all levels of training – is that an emphasis must be made on the fact that medicine is a time-consuming craft and although our interventions can be quick and painless, the process of healing and adapting to one’s life again is a much longer and bumpier ride. Guidelines of the European Society of Cardiology do just that – usually on the very first pages – by reminding us that these are just there to “guide” and that patients’ treatment and care must be personalized, i.e. tailored to specific conditions and risk profiles put in the setting of actual real life demands of each and every person we treat.

When discussing coronary artery disease with students, one should look again at the broader picture beyond what the textbooks offer, for these sources are always available, while practices of clinical judgment and decision-making can be achieved in Problem-Based Learning sessions. Nowadays, high volume centers like the two picked for this pilot study, have a sufficient amount of patients on daily basis that Internal Medicine Instructors/Clinical Assistants/Professors do not need to invent the typical patient to show their Students/Trainees, for these people truly exist and one just needs to look around more carefully.

Conclusion

The education of patients is equally important in the primary as secondary prevention in coronary artery disease, yet, the way to achieve it is to grow also awareness among medical students and trainees of all levels of medical training in Internal Medicine and Cardiology
that coronary artery disease affects as much women as men and that it depends on us, doctors, passing the right message through and making sure our patients do live by our advice.


Ostojic M, Karanovic N. Mentality and organisational changes are key to developing primary angioplasty. EuroIntervention 2012;8:86-89


Appendix 1

Date

Pt No | Pt Initials | Date of Angio

1. Do you know what are the risk factors for coronary artery disease?
   - YES
   - Gender  
   - Smoking  
   - HTA  
   - HLP  
   - DM  
   - Obesity  
   - Stress
   - NO

2. Who informed you the most on your risk factors' profile?
   - Primary Healthcare Physician
   - Referring Cardiologist
   - Hospital Trainee
   - Senior Cardiologist

3. Do you consider important seeing regularly your Cardiologist?
   - YES
   - NO

4. If needed to be reminded of them, who would you most follow advice from?
   - Primary Healthcare Physician
   - Referring Cardiologist
   - Senior Cardiologist of this Hospital
   - Other