

The management of AMI today: interview with Petr Widimsky



P Widimsky

University Hospital
Vinohrady, Prague,
Czech Republic

What do you consider have been the most important achievements in the management of acute myocardial infarction (AMI) have been over the last 20 years?

There have been three key achievements in the past 20 years. Firstly, the development of primary percutaneous coronary intervention (PCI) techniques has redefined how we treat AMI. Secondly, advances in drug therapy mean that we now have a full armoury of antithrombotic drugs available to us without which primary PCI would not be possible. Finally, better organisation of care has resulted in improved access to angioplasty centres for those in need of acute PCI, which is crucial for patient outcomes.

How well do you think current guidelines translate into real-life clinical practice across Europe?

There is quite a difference across Europe. For example, the latest European Society of Cardiology (ESC) guidelines recommend primary PCI as the preferred treatment for ST elevation acute myocardial infarction (STEMI) patients, provided it is available within 90–120 minutes of first seeking medical attention. However, results from a recent study (Widimsky et al. *Eur Heart J.* 2010; 31: 943-957) show large differences in access to primary PCI between countries. These inequalities are also evident within countries, regions and sometimes even within a hospital.

In our research, we found that the best organisation of care for reperfusion therapy in patients with AMI is in the Central, North and, to a lesser extent, Western parts of Europe. Specifically, countries like Switzerland,

Germany, Czech Republic, Austria, The Netherlands, Sweden, Norway, Denmark and Poland all have effective strategies in place. When you look at countries like France and the UK, the situation is less optimal and further South the situation becomes progressively worse. Countries such as Spain, Southern Italy, Greece, Turkey, Bulgaria, and Serbia have less organised primary PCI networks.

What do you think the reasons for this are?

I think the guidelines for both STEMI and non ST segment myocardial infarction (NSTEMI) are complete and well balanced. Where there is a failure to adopt the guidelines, the cause is nearly always suboptimal organisation of care. In perhaps only 10% of cases the issue is limited resources. Generally speaking, limited resources for the provision of primary PCI are not a big problem in Europe (with the exception of Romania). Most countries have sufficient numbers of cath labs and interventional cardiologists based on the population size meaning that sufficient access is possible.

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How important do you think a multidisciplinary approach is for the long-term management of AMI?

It is very important; many patients who have a myocardial infarction (MI) have multiple co-morbid conditions, such as diabetes or renal failure. The effective control

of co-morbidities is important as it has an impact on the risk of cardiac death. Therefore, a multidisciplinary approach is required to ensure correct management of any other conditions as well as the MI. Furthermore, all cardiac patients undergoing non-cardiac surgery and those administered with modern antithrombotic drugs will require very close cooperation between the cardiologist, surgeon and anaesthesiologist to optimise treatment.

What can be done to improve the long-term management of AMI and, ultimately, patient outcomes? What is the ideal situation?

This is a difficult question to answer due to the variability in access across Europe. In the short-term, improved organisation of care could help in many countries. Currently only 55% of cath labs in Europe offer non stop acute PCI services 24-hours, seven-days a week. This is unfortunate because, on the whole, the resources are available but they just need to be organised better.

I am involved in the 'Stent for Life' Initiative, an official project of the ESC Working Group on Acute Cardiac Care and the European Association of Percutaneous Cardiovascular Interventions. The programme aims to encourage the wider use of reperfusion therapy with PCI and, ultimately, improve the level of care in those countries where the current treatment is sub-optimal. In the initial six target countries (Turkey, Greece, Bulgaria, Serbia, France and Spain), the standard of care can be improved easily because the infrastructure is already in place with sufficient numbers of cardiologists and cath labs. As part of the programme we are working with the local cardiologists to form 'Stent for Life' groups in each country and help identify the best strategies to improve the situation. What has been very clear from our discussions with these groups is that the needs/issues are

unique to each country/area/hospital and what the 'Stent for Life' initiative can do is create a strategic framework in which those issues can be identified and resolved.

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Where resources or trained staff are limited other strategies may be required. One programme in the US has taken a different approach where they do not transport patients to the PCI centre but, instead, they transport an experienced cardiologist to a local cath lab in a local hospital with the patient as needed.

This model would not work in every country across Europe. In the Czech Republic for instance it would not work and, in fact, it would not be necessary, because for a population of 10 million people we have 22 cath labs which can be considered to be the optimal density of cath labs (approx 0.5 million people per cath lab). This keeps the cath lab busy and builds experience with the management of MI, but does not over burden the lab.

What do you think of manual thrombus aspiration?

It is extremely useful in selected patients and with some patients it is not possible to perform effective PCI without it. The Thrombus Aspiration During Percutaneous Coronary Intervention in Acute Myocardial Infarction (TAPAS) study (Svilaas et al., *N Engl J Med.* 2008; 358(6):557-67) has shown that the use of manual thrombus aspiration can be beneficial for most STEMI patients and results in improved clinical outcomes. What is not yet clear is whether it should be performed in STEMI patients routinely during every primary angioplasty. Results from TAPAS are extremely useful but only represent experience from a

single centre and I think a larger multicentre international randomised controlled trial would help answer this question.

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For patients with a very large thrombus burden, do you believe that thrombus aspiration is enough?

I don't believe that thrombus aspiration alone is enough but it must be the first step.

Are there times when you think thrombolysis is still indicated?

For me thrombolysis is only required in very sparsely populated regions such as Northern Scandinavia, some of the Greek islands, Alaska or Antarctica. However, it really depends on how accessible the nearest cath lab is. Guidelines recommend that treatment should be administered a maximum of 90–120 minutes following the first report of symptoms but it is very important to differentiate according to how this time is measured. For instance, with thrombolysis the time of first injection is considered the start of treatment, while with angioplasty it is the time of balloon inflation. However, with thrombolysis, while the injection of antithrombotic drugs is immediate, the time for these drugs to take effect can be as long as 50 minutes. With angioplasty the effect is immediate as soon as the balloon is inflated.

Based on this I think a more fair comparison would be the time from onset of symptoms to injection of thrombolysis drugs and time of onset of symptoms to insertion of sheath at the beginning of an angioplasty procedure.

“With the right organisation and co-operation between cardiologists and other healthcare providers, countries can set up an effective primary angioplasty network,,

How else will 'Stent for Life' activities help improve the overall management of AMI?

A recent article published by the 'Stent for Life' group (Knot et al. *EuroIntervention*. 2009;5(3):299, 301–309) describes some best practice examples from The Netherlands, Sweden, Denmark, Austria and the Czech Republic. These show how, with the right organisation and co-operation between cardiologists and other healthcare providers, countries can set up an effective primary angioplasty network. Based on the experiences in these countries, three realistic goals were identified: (1) primary PCI should be used for >70% of all STEMI patients; (2) primary PCI rates should reach >600 per million inhabitants per year; and (3) existing PCI centres should treat all their STEMI patients by primary PCI, i.e. should offer a 24/7 service.

Address for correspondence

Petr Widimsky
Cardiocenter, University Hospital
Vinohrady, robárova 50, 100 34
Prague 10, Czech Republic

widim@fnkv.cz

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