

Special Article

Seven Plus One Reasons for Surveys of Acute Myocardial Infarction in Greece

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Key words:

Surveys, myocardial infarction, multicentre studies.

Manuscript received:

June 8, 2006;

Accepted:

June 26, 2006.

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The purpose of this article is to assess the usefulness of surveys of acute myocardial infarction (AMI) in Greece, in the era of evidence-based medicine, randomised clinical trials and guidelines.

In the guidelines that are published at regular intervals by scientific societies or editorial boards the highest degree of validity is attributed to multi-centre, randomised trials, and the second highest to the results of well-designed observational studies.^{1,2} By using data from both types of study we may bridge the gap between the patients and doctors taking part in randomised studies and those involved in everyday clinical practice (Figure 1). It has been shown that patients in randomised clinical studies have a better prognosis, as well as a better risk profile (e.g. younger age, fewer concomitant diseases), than the general population of patients encountered in daily practice.^{3,4} In addition, the doctors and hospitals that take part in randomised clinical studies are likely to be different with respect to the application of effective treatments. Finally, we can control for the publication bias that tends to overestimate the positive effects of certain therapies.

In a country like Greece, AMI surveys are essential for at least seven reasons:

1. Surveys allow the direct evaluation of the incidence and the mortality of AMI.

The generalised and mandatory use of the International Classification of Diseases (ICD) system for the exit diagnosis would also permit the mortality of each disease to be recorded, although only in the context of a well-organised survey is it possible to record mortality in certain subgroups of patients (for example, according to the admission ECG). Regular surveys are the most reliable way of determining any changes in AMI mortality over time. In the USA, for instance, successive registries recorded a reduction in mortality from 11.2% to 9.4% during the period 1990-1999.⁵ In addition, comparison with the mortality in other countries is useful, provided we keep in mind any potential differences in the patients' risk profile and the definition of diagnoses.

2. Surveys also allow us to get to know the kind of patients with AMI who are treated in Greece. Demographic and clinical characteristics can be studied in depth and useful conclusions can be drawn that relate exclusively to Greece and to nowhere else. For example, the determination of a long delay in transportation to hospital could mandate the adoption of a system for pre-hospital thrombolysis.⁶ Only through the detailed recording of clinical and demographic data is it possible to identify specific problem areas that can be tackled at local or national level. The in-hospital de-

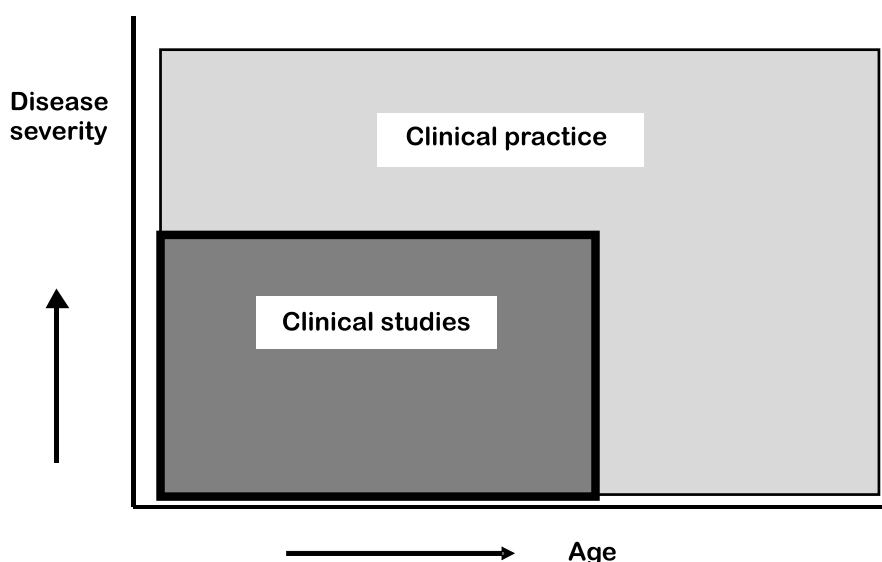


Figure 1. Patients taking part in randomised clinical studies are as a rule younger and at lower risk than patients seen in everyday clinical practice.

lays before reperfusion or primary angioplasty are a typical example.

3. Surveys enable us to determine the level of use of various therapies (invasive and pharmaceutical) that have a proven benefit for the patients' outcome. Any delays may be noted and their causes investigated. Thus, conformance with guidelines may be determined directly. We know that after acute infarction the administration of aspirin, statins, angiotensin converting enzyme inhibitors and β -blockers reduces the probability of a future adverse cardiac event by 80%.⁷ The use of this drug quartet can be requested during a survey follow up in order to ensure continuing optimal treatment for secondary prevention on a national scale.

4. Surveys allow comparisons between the practice in different hospitals around the country. Such comparisons do not aim to show the superiority of some university or larger hospitals over the others. They rather offer a unique opportunity to determine specific problem areas that are in need of improvement. In any case, it has been shown (and indeed by surveys!) that hospitals that lack a catheterisation laboratory do not have worse outcomes than those with invasive capabilities, as long as they use simple, but effective treatments, such as aspirin, β -blockers and statins, extensively.^{8,9} The final result is an improvement in the quality of service, to the benefit of the pa-

tient, and a uniformity of clinical practice in hospitals throughout the country.

5. The participation of a large number of hospitals and researchers in surveys at the national level improves auditing and promotes clinical responsibility. Oversights and inaccuracies can be recognised even during later data collection from the medical record, leading to future improvement. Mandatory follow up after discharge allows the collection of information about the course of the disease and contact with the patient, which are not guaranteed by the existing healthcare system in Greece.

6. Survey data may be used by the authorities for the better evaluation of healthcare resources. The optimum assignment of beds to coronary care units around the country could be planned after a careful study of data from a national survey. Hospitalisation time could be shortened by speeding up transportation to tertiary centres and implementing prompt invasive treatment.

7. Surveys generate ideas for further clinical or laboratory research, tailored to the needs and circumstances of a specific country.

In Greece there have been only a few AMI surveys. The first worthwhile effort was 13 years ago in the form of the Panhellenic Acute Infarction Study, which recorded 7433 cases of infarction, though without clearly defined inclusion criteria, from 76 Greek

hospitals.¹⁰ The mortality then was 10.4% (8.5% for men and 17.1% for women). A smaller, but representative study from 9 hospitals carried out a detailed investigation of prehospital and in-hospital delays. In-hospital treatment was started within 60 minutes or 3 hours of the onset of pain in only 12.5% and 50% of patients, respectively.¹¹ As part of the Euroheart Surveys programme, in 2000 Greece participated in the collection of European data with a non-representative sample of patients mainly from university hospitals.¹²

Concerning attempts to calculate the incidence of acute coronary syndromes in Greece, at the start of the 1990s the Cardiology Department of the University of Crete, in collaboration with the other 6 hospitals of that island, estimated the incidence of AMI to be 80 per 100,000 inhabitants.¹³ Ten years later, a survey of acute coronary syndromes, including sudden death, in a cohort aged 30-79 years in north-western Greece estimated the age-adjusted incidence to be 39 per 10,000 inhabitants (60 for men and 19 for women). The non-adjusted incidence of unstable angina and AMI for those aged over 30 years was estimated at 22 per 10,000 inhabitants.¹⁴ Even more recently, the GREECS study recorded data from patients with a diagnosis of acute coronary syndrome who were treated in 6 hospitals (5 regional, one tertiary university hospital) during a one-year period. Apart from infarctions, with or without ST-segment elevation, this study also included unstable angina. The annual incidence of acute coronary syndromes was again calculated at 22 per 10,000 people.¹⁵

Data collection for the Hellenic Infarction Observation Study (HELIOS) has recently been completed. Thirty-one Greek hospitals took part, with predetermined representation of all geographical regions, of hospitals with and without invasive capabilities, and taking into account the seasonal distribution of the population between urban centres and the provinces. Special emphasis was placed on observance of the rules for recording procedures,¹⁶ so that the results would be comparable with those from international studies. The definition of ST- and non-ST-elevation infarctions was the current, revised definition based on indexes of myocardial damage.¹⁷ There were clear instructions for the completion of data in order to ensure the uniformity of records. The definitions of outcome events were also strictly determined and efforts were made to achieve full follow up after discharge. The researchers met at regular intervals during the recording period so that problems could be settled. Checking of

the raw data and their correct transfer to electronic form were both supervised by the coordinating team.

Based on experience from HELIOS, another reason for surveys has emerged: collaboration among researchers in a common scientific programme forms the basis for a fruitful exchange of views, the development of friendly relationships, and the creation of a network of hospitals for continuing future cooperation.

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