

The Secondary Prevention of Ischaemic Heart Disease in Spain. A Review of Observational Studies

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Objective. To describe the use of ischaemic heart disease (IHD) secondary prevention measures in the Spanish National Health System.

Design. Systematic review of observational studies with information on the use of preventive treatment and measures in the prevention of secondary IHD.

Setting. Primary care and specialised out-patient clinics.

Data sources. Medline search and complementary searches of studies published between 1995 and 2004 with a description of the use secondary prevention measures on hospital discharge or in the follow up after discharge.

Selection of studies. A total of 125 references were found after the MEDLINE search, 13 of which were selected after an independent review by 2 researchers. The complementary sources provided 9 more studies giving a total of 22.

Data extraction. One researcher extracted information on the characteristics of the study and the results variables, which were independently verified by a second evaluator.

Results. In the 22 studies found, a high level of variation was shown in the different treatment rates: anti-aggregants (at discharge, 72%-97.1%; follow-up, 46.4%-93.8%); beta-blockers (at discharge, 29%-68.3%; follow-up, 22.4%-59.0%); drugs with action on the renin-angiotensin system (at discharge, 16.2%-52.2%; follow-up, 6.1%-53.1%); lipid lowering drugs (at discharge, 6.7%-88.7%; follow-up, 24.5%-89.5%). The treatment rates showed a progressive improvement over time during the period studied.

Conclusions. In the period 1994-2003 treatment rates in the secondary prevention of IHD have increased, although there is still much room for improvement.

Key words: Ischaemic heart disease. Myocardial infarction. Secondary prevention. Treatment.

PREVENCIÓN SECUNDARIA DE LA CARDIOPATÍA ISQUÉMICA EN ESPAÑA. UNA APROXIMACIÓN DESDE LOS ESTUDIOS OBSERVACIONALES

Objetivo. Describir la utilización de medidas de prevención secundaria de la cardiopatía isquémica (CI) en el Sistema Nacional de Salud.

Diseño. Revisión sistemática de estudios observacionales con información sobre uso de tratamientos y medidas preventivas en prevención secundaria de la CI.

Emplazamiento. Atención extrahospitalaria, tanto primaria como especializada.

Fuentes de datos. Búsqueda en MEDLINE y búsquedas complementarias de estudios publicados entre 1995 y 2004 con descripción del uso de medidas de prevención secundaria al alta hospitalaria o en el seguimiento tras el alta.

Selección de estudios. Tras la búsqueda en MEDLINE se encontraron 125 referencias, de las que en la revisión independiente realizada por 2 investigadores se seleccionaron 13. Las fuentes complementarias aportaron 9 estudios hasta totalizar los 22 incluidos.

Extracción de datos. Un investigador extrajo información sobre las características del estudio y las variables de resultado, que fue verificada independientemente por un segundo evaluador.

Resultados. Se hallaron 22 estudios que muestran un alto grado de variabilidad en el uso de los diversos tratamientos índice: antiagregantes (al alta, 72-97,1%; seguimiento, 46,4-93,8%); bloqueadores beta (al alta, 29-68,3%; seguimiento, 22,4-59,0%); fármacos con acción sobre el sistema renina-angiotensina (al alta, 16,2-52,2%; seguimiento, 6,1-53,1%); hipolipemiantes (al alta, 6,7-88,7%; seguimiento, 24,5-89,5%). La evolución temporal de las cifras de tratamiento muestra una importante mejora en el período.

Conclusiones. En el período 1994-2003 se ha incrementado la utilización de tratamientos índice en prevención secundaria, aunque aún queda un importante espacio de mejora.

Palabras clave: Cardiopatía isquémica. Infarto de miocardio. Prevención secundaria. Tratamiento.

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Introduction

A recent study quoted that approximately 30 000 people/year survive an acute myocardial infarction (AMI) in Spain and they go on to join the number of candidates for the secondary prevention of ischaemic heart disease (IHD).¹ Many clinical trials have demonstrated the efficacy of certain treatments in the secondary prevention of IHD, such as acetylsalicylic acid (ASA) and other platelet anti-aggregants, beta-blockers, angiotensin converting enzyme inhibitors (ACEI), angiotensin-II receptor antagonists (ARA-II) or statins.²⁻⁴ There is also a significant consensus on the importance of, advising against smoking, advice on exercise and diet.^{3,4}

The National Health System (NHS) 2004-2007 Ischaemic Heart Disease Integral Plan (PICI, in Spain)⁵ pointed out the need to treat post-infarction patients with ASA, beta-blockers and statins in indicated cases; although the PICI commented on “insufficient” levels of these measures, it did not give any information on the magnitude of the problem of under treatment.⁵ The objective of this study is to give an approximation of IHD secondary prevention measures in the Spanish NHS from the results of the observational studies published in the last 10 years.

Methods

Design

Systematic review of the medical literature.

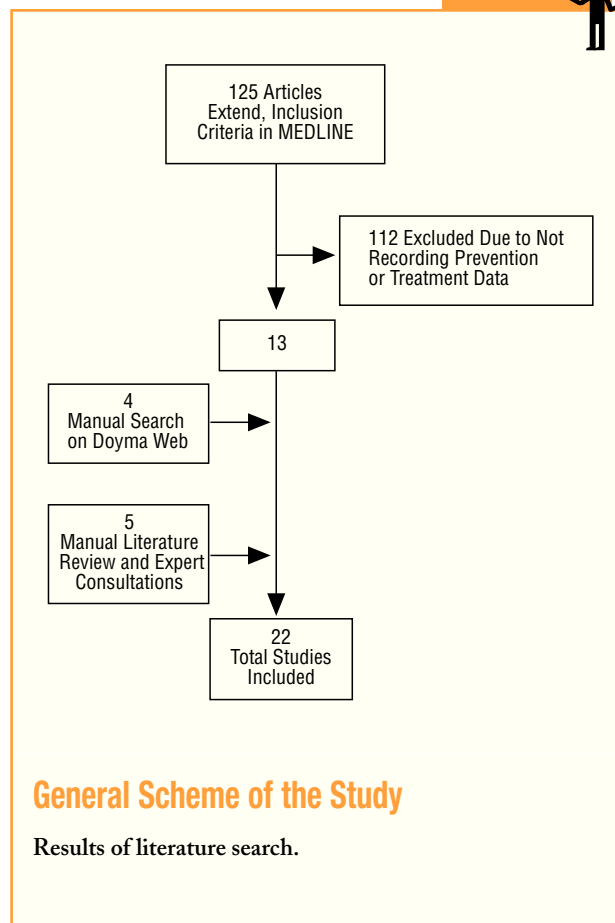
Population

Observational studies published between 1995 and 2004, carried out on patients with IHD in Spain, and which describe the use of certain secondary prevention measures (drug treatments and/or advice) at hospital discharge or in the follow-up after discharge, as well as whether the control was carried out in hospital outpatient clinics or in primary care. Studies which exclusively referred to management while in hospital were excluded.

Literature Search

A search was first carried out in the MEDLINE data base using key words such as, *myocardial ischemia* or *myocardial infarction* and the synonymous descriptors of the MeSH thesaurus for these 2 terms. The qualifiers, *prevention and control* and *therapy* were used and the search was limited to articles with a summary (to avoid selecting editorials or informative works) and carried out on humans. The search was also restricted to articles in Spanish or which made reference to Spain and published from 1995-2004. This search was completed by a search in the Doyma Publishing data base (using very different terms, giving the non-specificity of the search engine), which include the main cardiology, internal medicine and primary care journals in Spanish, consulting with experts and a manual review of the literature of selected studies and review articles on the subject.

Material and methods



Extraction of Data and Variables

Two of the authors independently reviewed the summaries, or, if necessary, the complete texts obtained from the different sources, and selected the studies that complied with the inclusion criteria. These studies were analysed, first by one author, who extracted data of interest, and then verified independently by a second author. In case of discrepancies, a consensus agreement was reached. The information extracted included, characteristics of the study (period, type of study, setting, follow-up time, location, number and characteristics of the selected population), treatment variables (anti-aggregants, lipid lowering drugs, beta-blockers, ACEI and ARA-II, calcium antagonists, nitrates, and anticoagulants) and interventions on lifestyles (anti-smoking, diet, and exercise advice). The information was collected as it was presented by the authors of each of the studies, usually as a percentage of patients to whom a determined intervention was administered. When clarification of any aspect was required, the authors of the original studies were consulted.

Analysis

A descriptive analysis of the results of the studies included was carried out. The lack of homogeneity between the studies and the time differences was not conducive to summarising the results using meta-analysis or other techniques. The time trends in the use of some drugs (ASA, beta-blockers, ACEI and ARA-

II, and statins) were analysed by estimating the linear regression slope during the period reviewed.

In this analysis, and to avoid giving the same weight to studies of different sizes, the figures of each study were weighted by the number of cases included.

Results

A total of 22 studies⁶⁻²⁷ that fulfilled the inclusion criteria were found (Table 1). The studies were published between 1996 and 2004, but the inclusion periods were from 1994 to 2003. Fifteen studies were in the hospital setting^{6,10-14,17-19,21,23-27} (of which 4 presented follow up data from outpatient clinics after the hospitalisation period^{10,13,21,24} and 1 was carried out by specialised care units²⁶), and 7 were carried out in primary care^{7-9,15,16,20,22} (although one of them included data at discharge¹⁶). A cohort design was used in 13 studies and 9, including all of those from primary care, except PRE-MISE¹⁶ were cross-sectional designs.

Three studies included a care improvement intervention,^{19,21,27} therefore they could not be considered as strictly observational (although they were low intensity treatments, therefore it was eligible for inclusion in the study), and one was an observational type nested in a clinical trial.²³

The majority of the studies included those discharged alive after admittance due to an AMI, although patients with different forms of IHD or post-surgical coronary were included in 12 studies. In a mixed study of primary and secondary prevention, only the data applying to the latter patients were included.²⁶ The results obviously varied in setting and number of cases: from studies in only one primary care centre with less than 100 cases^{8,9} to studies with more than 100 hospitals²¹ or more than 2000 patients.^{14,18,19,21,25,27} In total, 33 808 patients on hospital discharge (mean of 1610 per study) took part, 5956 in outpatients follow-up (851 per study), and 1556 primary care (194 per study). As regards funding, 8 studies were exclusively financed by the pharmaceutical industry, 6 by a health administration (in 2 cases exclusively and 4 combined with the pharmaceutical industry or private funding), and in 8 the source of funding was not stated.

As regards the studies with data on discharge from hospital (Table 2, Figure 1), all except 2^{12,23} exceeded 80% of patients on anti-aggregants. Four^{6,11,12,23} presented data with less than 35% of the patients on beta-blockers, while 6 exceeded 50%. Nine showed figures of less than 40% for patients treated with ACEI or ARA-II, and varied between 16% in EUROASPIRE-II²⁴ and 52% in CAM.²⁷ Lipid lowering drugs were mentioned in 12 studies, of which 5 of them pointed out a percentage use of less than 30%^{6,10,13,16,17}; on the other hand, PRESENTE²¹ reported figures very close to 90%. Advice on diet was mentioned in 4 studies and anti-smoking and exercise advice in 3

of them. The percentages of patients advised were above 90%, except in one study,²⁷ although in this case the advice mentioned in the discharge report, was assessed.

The figures on other treatments are also shown in Table 2, such as nitrates (from less than 10%²⁷ to more than 80%^{13,16,17} depending on the different studies), calcium antagonists (from less than 5%²⁷ to more than 40%^{13,23}), and anticoagulants (from 6%²¹ to 8.6%²⁴).

Of the 12 studies (5 hospital based and 7 carried out in primary care) with after discharge follow-up data (Table 3, Figure 1), 8 give anti-aggregant figures that, except in 2 studies with figures lower than 50%,^{7,20} are similar to those of studies at discharge. Beta-blockers (7 studies) have percentages of patients treated of between 34% and 59% for hospital based ones, and between 22% and 50% in primary care. As regards ACEI and ARA-II (8 studies), 5 studies state percentages around or below 25%,^{7,10,13,20,24} while another 2 exceeded 50%.^{9,21} With the lipid lowering drugs, the variation detected in the treatments at discharge are maintained, with figures that go from 89.5% in PRESENTE²¹ to around 25%.^{10,22} The nitrates, calcium channel antagonists and anticoagulants also maintain significant ranges of variation, similar, though not as wide as those in treatments at discharge, and only one study recorded different types of advice (rates of 100%, although referred to the population with the respective health problem).²⁶

The time trends (Figure 1) of the treatment rates, show, on the whole, a significant increase in the use of statins and beta-blockers and, to a lesser extent in ACEI and/or ARA-II. ASA, based on the high figures, also shows a definite improvement. Two intervention studies,^{21,27} tend to maintain the highest treatment rates. The trends in primary care are difficult to interpret owing to the lack of studies and their concentration in the 1998-2000 period.

Discussion

On looking at the studies on hospital discharges, the results of this study show acceptable prescription percentages of anti-aggregants and a rapid and significant increase in the use of beta-blockers, ACEI and statins. Even so, there is room for improvement in the majority of the figures obtained, if we take the PRESENTE²¹ or CAM²⁷ studies as a reference. It is possible that the improvements with time may have not been homogeneous, since the studies carried out in the 1999-2000 period, such as ICAR²³ and EUROASPIRE II,²⁴ show low rates of ACEI use (27% and 16%, respectively).

As regards nitrates and calcium antagonists, the figures are erratic, without any obvious time trend and, above all, without any clinical logic, especially as regards the relatively high use of calcium agonists in patients with AMI. The use of anticoagulants appears to

TABLE 1 Characteristics of the Spanish Studies on Secondary Prevention of Ischaemic Heart Disease*

Study, Year of Publication	Year of Review	Review	Funding	Financiaci�n	Location and Institutions	Population	Period of Follow-Up and Number of Cases
PREVESE, 1997 ⁶	1994	Cohorts, prospective	Hospital	Pharmaceutical industry	39 hospitals with coronary unit. Several ACs	AMI hospital discharges with admission in coronary units	At discharge: 1242. At 6 months: 1242
Calpe et al, 1996 ⁷	1994	Cross-sectional	Primary care	Not stated	1 health centre. Palma Mallorca	>64 years, with diagnosis indicative of IHD	Variable: 179
Tob�as et al, 1996 ⁸	1994	Cross-sectional	Primary care	Not stated	1 health centre. Barcelona	IHD	Variable: 75
Romera et al, 2002 ⁹	1994-2000	Cross-sectional	Primary care	Not stated	1 health centre. Madrid	IHD (AMI and angina)	Variable: 64
Brotos et al, 1998 ¹⁰	1995	Prospective, cohorts	Hospital	Not stated	1 hospital. Catalonia	AMI hospital discharges	At discharge: 380. At 12 months: 314
RIGA, 2001 ¹¹	1995	Cohorts, prospective	Register hospital	Mixed (ACs)	19 hospitals, Galicia	AMI hospital discharges	At discharge: 655
PRIMVAC-DT, 2002 ¹²	1995-99	Cohorts, prospective	Register hospital	Mixed finance	17 hospitals. Valencia Community	AMI hospital discharges	At discharge: 1792
CIRCORCA, 2001 ¹³	1996-97	Cohorts, prospective	Hospital	Public (ACs)	8 hospitals. Catalonia	Patients subjected to aortic-coronary bypass	At discharge: 710. At 12 months: 604
IBERICA, 2001 ¹⁴	1997	Cohorts, prospective, population register	Hospital	Mixed (FIS and ACs)	99 hospitals. 8 ACs	AMI hospital discharges	At discharge: 4041
ELIPSE, 2000 ¹⁵	1997-98	Cross-sectional	Primary care	Not stated	Primary care. Ciudad Real	ICD for more than 1 year duration	Variable: 205
PREMISE, 2000 ¹⁶	1997-99	Cohorts, prospective	Primary Care	Public (FIS and ACs)	Health centres associated with 4 hospitals. Catalonia	Hospital discharges of first AMI	At discharge: 618. At 24 months: 398
RIMAS, 2004 ¹⁷	1998	Cohorts, prospective	Hospital	Pharmaceutical industry	All hospitals. Asturias	Hospital discharges of first AMI	At discharge: 875
PREVESE-II, 2002 ¹⁸	1998	Cohorts	Hospital	Pharmaceutical industry	74 hospitals. Several ACs	AMI hospital discharges	At discharge: 2054
Programa 3C, 2001 ¹⁹	1998	Cohorts, retrospective, intervention	Hospital	Pharmaceutical industry	25 hospitals. Several ACs	Discharges due to IHD (AMI, angina, and revascularised)	At discharge: 3215
PRESENCIAP, 2001 ²⁰	1999	Cross-sectional	Primary care	Not stated	2 basic areas. Girona	Chronic ischaemic disease	Variable: 183
PRESENTE, 2004 ²¹	1999	Cohorts, prospective, intervention	Hospital	Pharmaceutical industry	110 hospitals. Several ACs	AMI hospital discharges	At discharge: 4030. At 6 months: 3193
PRECIAR, 2001 ²²	1999	Cross-sectional	Primary care	Not stated	3 health centres. Saragossa	IHD (AMI and angina)	Variable: 388
ICAR, 2003 ²³	1999-2000	Cross-sectional	Hospital (ACs)	Mixed	23 basic areas. Catalonia	Stable coronary disease	At discharge, ≤64 years: 471; > 64 years: 550
EUROASPIRE-II, 2001 ²⁴	1999-2000	Cohorts, prospective	Hospital	Pharmaceutical industry	3 hospitals. Catalonia	Hospital discharges due to IHD in >70 years	At discharge: 536. At 6 months: 404
PRIAMHO II, 2003 ²⁵	2000	Cohorts, prospective	Hospital	Pharmaceutical industry	58 hospitals. Several ACs	AMI hospital discharges	At discharge: 6221
G�mez-Belda, 2003 ²⁶	2001	Cross-sectional	Hospital	Not stated	1 hypertension unit. Sagunto	Patients with high cardiovascular risk	Variable: 199
CAM, 2004 ²⁷	2002-03	Cross-sectional, intervention	Hospital	Pharmaceutical industry	39 hospitals. Several ACs	Hospital discharges due to IHD (AMI or unstable angina)	At discharge: 4626

*AC indicates autonomous community; IHD, ischaemic heart disease; AMI, acute myocardial infarction. The hospital studies include treatment at discharge, follow-up in outpatient clinics or specialised care hypertension units, but not while in hospital.

TABLE 2 Studies on Secondary Prevention of Ischaemic Heart Disease in Spain. Percentage of Patients Treated at Hospital Discharge*

Reference	Statins (Others)	Beta-blockers	Anti-aggregants	ACEI (ARA-II)	Nitrates	Calcium antagonists	Anticoagulants
PREVESE, 1997 ⁶	4.5 (2.2)	32.7	89.8	33.3	62	27.1	7.8
Brotos et al, 1998 ¹⁰	8.4	44.7	88.4	26.3	40.5	26.8	7.6
RIGA, 2001 ¹¹	–	32.1	–	–	–	–	–
PRIMVAC-DT95, 2002 ¹²	–	29	72	40	45	–	–
CIRCORCA, 2001 ¹³	Males: 24.8. Women: 38.6	Males: 61.8. Women: 57.8	Males: 84.7. Women: 81.9	Males: 24.6. Women: 39.8	Males: 87.3. Women: 92.8	Males: 56.1 Women: 6	–
IBERICA, 2001 ¹⁴	–	44.5	91.2	37.6	53.2	18.7	–
PREMISE, 2000 ¹⁶	18	58	92	29	83	21	8
PRIMVAC-DT99, 2002 ¹²	–	42	84	48	34	–	–
RIMAS, 2004 ¹⁷	25	43.2	94	33.3	92	22.5	–
PREVESE-II, 2002 ¹⁸	29.4 (2)	45.1	87.8	50.4	57.7	17.7	7.9
Programa 3C, 2001 ¹⁹	27.5 (9.7)	37.4	84.1	27	38.6	28	–
PRESENTE, 2004 ²¹	87.0 (1.7)	59.4	94.1	47.6	42	17.9	6.1
ICAR, 2003 ²³	≤64: 59.8. >64: 47.5	≤64: 40.9 >64: 30	≤64: 80.6 >64: 72.7	≤64: 26.9 >64: 30.2	≤64: 41.3 >64: 59.5	≤64: 37 >64: 43.5	–
EUROASPIRE-II, 2001 ²⁴	39.1	52.6	91.4	16.2	–	–	8.6
PRIAMHO II, 2003 ²⁵	44.9	55.9	84.3	45.1 (2.1)	37.7	16	–
CAM, 2004 ²⁷	Baseline: 62.8. Post: 70.7-75.0	Baseline: 63.4. Post: 65.1-68.3	Baseline: 95.1. Post: 94.7-97.1	Baseline: 50.3. Post: 50.0-52.2	Baseline: 7.6. Post: 4.8-5.5	Baseline: 3.6. Post: 2.1-3.1	–

*ARA-II indicates angiotensin II receptor antagonists; ACEI, angiotensin converting enzyme inhibitors. The CAM study includes 3 cross-sectional studies (baseline and 3 cross-sectional post-intervention).

TABLE 3 Studies on Secondary Prevention of Ischaemic Heart Disease in Spain. Percentage of Patients Treated in Outpatient Clinics and Primary Care*

Reference	Setting	Statins (Others)	Beta-Blockers	Anti-Aggregants	ACEI (ARA-II)	Nitrates	Calcium antagonists	Anticoagulants
Calpe et al, 1996 ⁷	PC	–	–	46.4	6.1	–	–	–
Tob�as et al, 1996 ⁸	PC	33	–	–	–	–	–	–
Romera et al, 2002 ⁹	PC	Angina: 50	Angina: 28.1. AMI: 37	Angina: 90.5. AMI: 79.0	AMI: 53.1	Angina: 46.8. AMI: 34.4	Angina: 50. AMI: 43.8	AMI: 6
Brotos et al, 1998 ¹⁰	PC	24.5	33.8	84.7	25.8	43.6	34.4	9.9
CIRCORCA, 2001 ¹³	OP	Males: 41.7. Women: 51.8	Males: 34.5. Women: 36.1	Males: 84.3. Women: 92.8	Males: 23.4. Women: 44.6	Males: 38.8. Women: 43.3	Males: 31.1. Women: 31.7	–
ELIPSE, 2000 ¹⁵	PC	35.6 (10.2)	–	–	–	–	–	–
PREMISE 2002 ¹⁶	PC	52	50	87	32	52	31	8
PRESENCIAP, 2001 ²⁰	PC	–	22.4	49.7#†	24	–	–	–
PRESENTE, 2004 ²¹	OP	88.0 (1.5)	59	93.8	45.3 (6.3)	39.1	20.3	4.2
PRECIAR, 2001 ²²	PC	26.5	–	–	–	–	–	–
EUROASPIRE-II, 2001 ²⁴	OP	64.6	47.3	85.6	21.8	–	–	6.6
G�omez-Belda, 2003 ²⁶	HBP Unit	59	–	–	–	–	–	–

*PC indicates primary care; OP, hospital outpatient clinic; HBP, high blood pressure; AMI, acute myocardial infarction.

†Includes patients who take anticoagulants.

have remained stable in the period. The scarcity of studies which give figures on anti-smoking, exercise and diet advice, means that trends cannot be interpreted.

The studies carried out after hospital discharge, show a similar pattern to that discussed: acceptable rates of anti-aggregants and improvements in the use of

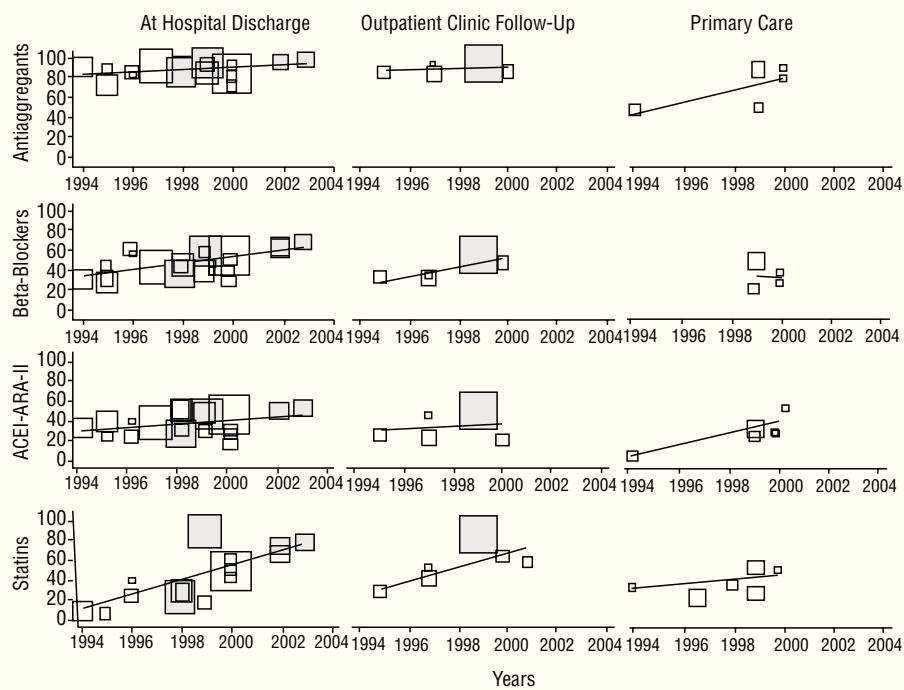


FIGURE 1

Time trends of the percentage of patients treated with the respective drug in studies on the secondary prevention of ischaemic heart disease. ARA-II indicates angiotensin II receptor antagonists; ACEI, angiotensin converting enzyme inhibitors. The size of the symbols of each study is proportional to the number of patients included. The shaded blocks indicate intervention studies.

beta-blockers, ACEI and statins, which are, however, lower than the follow up figures from PRESENTE²¹ or those established as possible by Brotons et al, on reviewing the PREMISE²⁸ patients. Aspects which suggest a significant room for improvement in care. The studies based in primary care, with two exceptions,^{9,16} show low treatment figures, although their characteristics (cross-sectional except in one case,¹⁶ with patients in different periods of follow up, lower sample size and without data on patients recruited after the year 2000), makes them difficult to interpret. In any case, the differences between the extra-hospital studies could be explained by: *a)* decrease in the intensity of treatment during the period studied, either due to withdrawals or because patients discharged years ago received less treatment at that time and the guidelines may not have been subsequently updated; in this event, the follow up windows used in hospital studies (usually 6 months) collected recent patients, while the cross-sectional designs of primary care would include patients at different periods of follow-up, and *b)* due to significant local and regional variations in the use of drugs, clearly demonstrated in some studies on the within-hospital management of AMI.^{25,29}

The review carried out has important limitations in trying to specify the current situation of updates in secondary prevention of IHD, since there is no recent data and, as our own review shows, there have been significant improvements in the treatment percentages. This limitation could be even more important in primary care (studies with patients treated between 1994 and 1999). Similarly, and even with the exception of multicentre hospital studies, the studies combine restricted territorial settings and a significant variation, which makes it difficult to extrapolate to the whole NHS. Also, the particular design of the majority of studies, developed by professionals who take part in them voluntarily, where it is hoped that more interest is taken on the problem, leaves them open to the possibility of biases in the referred figures as regards those of the NHS overall.

In any case, the review carried out suggests that, along with significant advances in the pharmacological management of the secondary prevention of IHD, more evident in specialised care than primary care, there is still a lot of room for improving care, particularly as regards the under use of beta-blockers, ACEI and statins. Although it is anticipated that the current figures in primary care may be higher, partly because they have a clo-

Discussion
Key points**What Is Known About the Subject**

- There is the perception, not clearly quantified, that the secondary prevention of ischaemic heart disease in the Spanish NHS, after being managed during a hospital stay, is suboptimal.
- One of the most important problems could be the insufficient use of effective drugs (anti-aggregants, beta-blockers, ACEI, and statins) and advice on the life style and habits in the hospital follow-up after discharge and in primary care.

What This Study Contributes

- In studies at hospital discharge, the use of beta-blockers, ACEI, and statins markedly improved in the period 1994-2003, while anti-aggregants remained at acceptable levels.
- Follow-up studies after discharge, despite the improvements in the period, show treatment rates below optimum. As regards studies in primary care, it is difficult to reliably review the current situation due to, their scarcity, design, and their period of duration.
- At both care levels there is still much room for improvement in management of patients with established ischaemic heart disease.

se relationship with the prescription figures of the specialists and these have increased, to obtain information on the current situation in the management of these patients in primary care is a priority research objective where the analysis of determined sub-groups (by gender, age groups, diabetics and others) should not be forgotten. These investigations should also look into the analysis of the factors (of the patient, the doctor, the setting) associated with the sub-optimal management of the secondary prevention of IHD. The available data probably points to the urgency of starting improvement interventions in different settings, particularly in primary care.

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