

Oxygen therapy for acute myocardial infarction: a web-based survey of physicians' practices and beliefs

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Background and objective: The routine administration of oxygen in acute myocardial infarction (AMI) is a practice open to debate, particularly after a Cochrane review of oxygen vs air showed a nonsignificant but considerable increase in mortality for oxygen-treated patients (relative risk 3.03; 95% confidence interval, 0.93-9.93). The reviewers concluded that a randomized controlled trial was needed to provide definitive evidence. The aim of this study was to know the prevalence of use of oxygen therapy in uncomplicated AMI and the beliefs of physicians about this therapy.

Methods: Two recruitment methods were combined. Participants were found either through e-mails sent to a theoretical sample of physicians treating AMI, in which they were given a link to the web-based survey, or by means of a posted link to the online survey.

Results: Eighty-six percent of the respondents treat AMI with oxygen therapy. Nearly half (44%) believe it relieves pain and over half (54%) believe it reduces mortality. Nearly 29% are unfamiliar with guidelines for oxygen therapy in AMI. Scant differences were found between medical specialties.

Conclusions: Oxygen therapy is widely used in AMI. Physicians justify their use by referring to the by a belief that it reduces pain and mortality. Beliefs should be taken into account in designing future research. [Emergencias 2009;21:422-428]

Key words: Acute myocardial infarction. Oxygen therapy. Internet. Web-based surveys.

Introduction

The use of oxygen therapy in acute myocardial infarction (AMI) is an established routine clinical practice, explicitly recommended by clinical practice guidelines (CPG). The CPG of the Spanish Society of Cardiology¹ (SEC) recommends the use of oxygen "during 2-3 hours or as long as the pain persists" and assigns it a grade IIa recommendation as classified by the American Society of Cardiology (ACC/AHA)² and also recommends routine administration of oxygen beyond 2-3 hours, but this is assigned a grade IIb recommendation.

The guidelines of the ACC/AHA^{3,4} for acute

coronary syndrome (ACS) recommend oxygen therapy when arterial saturation is less than 90% (class I recommendation and a level of evidence B), and advise (Class IIa recommendation) the use of oxygen in all patients during the first 6 hours of presentation, based on level of evidence C.

For ACS, the Scottish Intercollegiate Guidelines Network⁵ only recommends oxygen therapy in patients with arterial oxygen saturation less than 90%, without commenting on the other patients. Curiously, it states that "there is no evidence that routine administration of oxygen to the entire spectrum of ACS improves clinical outcome and infarct size", although it does note that "in experi-

mental models oxygen can limit myocardial injury⁶ and reduce ST elevation¹⁷. Finally, the recent guidelines of the European Society of Cardiology^{8,9} for ACS advise using oxygen only in cases with oxygen saturation below 90%.

In summary, there is a certain "weakness" in the guidelines on the use of oxygen in AMI patients without decreased oxygen saturation. The weakness is related to a lack of evidence about its effectiveness in ACS and probably the belief, never demonstrated, in its beneficial effect.

In March 2007 there appeared a historical overview¹⁰ which changed this scenario, warning about the possible adverse effect of routine administration of oxygen in patients with AMI. A Cochrane review¹¹ concurred on its possibly harmful effect and emphasized the need for a new randomized clinical trial in this regard. Such a trial presents some difficulties of feasibility, one of which is the possible belief by clinical professionals in the benefits of oxygen therapy, which could lead to "non-acceptance" by clinicians to participate in a trial protocol that proposes to deny half of their patients with AMI a treatment they believe to be effective.

The aim of this study was to determine the extent of routine use of oxygen in AMI and to explore clinicians' beliefs about their effects on pain and mortality.

Method

We selected a theoretical sample of clinicians attending AMI in Spain. In the first phase, the study was conducted by questionnaire survey in the Ischemic Cardiopathy Section of SEC and the Basque Society of Emergency Medicine (SVMUE). The former group was contacted by e-mail based on the official lists of the section. For the latter group, we used an institutional web post; in both cases we provided a link to the study website. In the second phase, we selected the intensive care and emergency departments of three hospitals in the city of Murcia, whose clinicians were contacted by e-mail from official lists.

Characteristics of the questionnaire

The questionnaire consisted of 7 questions:

1) Do you treat AMI patients with oxygen in your practice? 2) Approximately how many patients with AMI do you treat every year? 3) Do you think that oxygen decreases pain in AMI patients? 4) Do you think the oxygen decreases

AMI-related mortality?, 5) Does your protocol or your local CPG recommend the use of oxygen therapy? 6) Please indicate your professional status, and 7) What is your specialty? Four questions, numbers 1, 3, 4 and 5, were directly related to the objectives of the study. The response scale was nominal and asymmetric, and in all cases included an escape response (such as "inappropriate" or "I do not know"). The order of the questions was defined to sequentially explore clinical habits, beliefs and knowledge.

With regard to its electronic properties, the questionnaire was not adaptive; it was designed to be completed by clicking on the appropriate response, with only one question at a time and a progress bar on the screen.

Conducting the Survey

Contact was made by email with an institutional letter of support for the study, and a link to a specific website for responses to the survey questions. The survey was accessible on the website during the period 1-30 May 2007 for the first sample and 10 June-15 July 2007 for the second sample. The opening email was sent on the first day of each period cited, in the first case by the SEC or the SVMUE website and in the second case directly by the research group.

The survey was anonymous (no authentication required), prevented duplication of responses through the use of Cookies, and an automated approach to capture answers online was used on the website. To maximize the rate of completion, participants were allowed to halt the process and resume later, starting from the point where they had left off but not allowed to rectify responses to questions already answered.

To conduct the survey we used specific software (Surveyselect.net[®] software) hosted at the institutional server of the University of Birmingham UK. The automatic analyses made by the program were visible to three of the study researchers (JB-CL, AB and JIEK).

Ethical aspects

We consulted the Provincial Ethics Committee of Guipúzcoa who ruled that this study did not require formal approval. To encourage participation, participants were invited to send us their email addresses to receive the results of the survey. For personal data protection, the SEC implemented corporate standards; personal data obtained through the web and managed directly by

researchers were encrypted, protected during the study and destroyed at the end.

Data Analysis

After a preliminary screening, all samples were analyzed together. Participants were considered "recruited" if they answered at least the first question of the questionnaire. For each question the system provided the answers automatically captured, which allowed us to record dropouts, question by question.

The "index of reception" (or contacts) was defined as the percentage of people who actually received the email (i.e. not returned automatically due to address difficulties or other problems), the "response rate" as the proportion of these people who answered the first question (no. of responders/no. of successful contacts) and the "completion rate" was calculated as the percentage of people who completed all the survey questions compared with the number who responded to at least the first question.

The answers to each question are described as absolute numbers and percentages. For the calculation of the percentage denominators, we excluded the dropouts corresponding to each answer. We compared the responses between subgroups of participants according to the degree of experience and expertise in the management of AMI. For this, the participants were grouped as

cardiologists and intensive care specialists versus emergency department specialists. The answers were condensed into positive or negative, except for the escape responses which were maintained. For hypothesis testing, we used chi-square test; differences with a p value of less than 0.05 were considered statistically significant.

Results

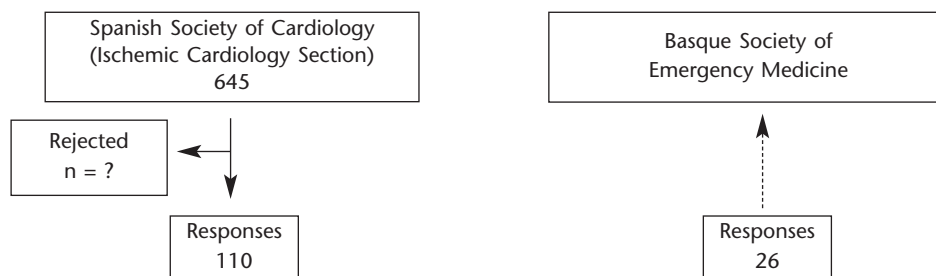
The flowchart showing recruitment appears in Figure 1. In the first phase, the response rate for the SEC group was 17% and for convenience sampling this calculation was not relevant. In the second phase, 145 emails were sent out and 36 were returned (24%), the index of reception was 76% and the response rate was 30% (33/109).

The completion rate for the survey was 92%; six participants dropped out for the 2nd question and for the following relevant questions total dropouts were: 11 for the 3rd question, 12 for the 4th and 14 for the 5th. Denominators for the four key questions were therefore: 169, 158, 157 and 155 respectively.

The answers to the questionnaire, including the four key questions, are shown in Table 1.

A large majority (85.8%) reported routine use of oxygen and almost half (44%) considered it had a positive influence on pain. More than half the respondents (54%) believed that oxygen ther-

Sampling phase 1



Sampling phase 2

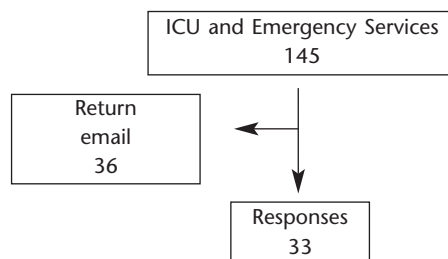


Figure 1. Flowchart of sampling (the convenience sample and the two probability samples).

apy had a positive influence on mortality, although 1/5 of them believed this influence to be small. Finally, regarding the CGG recommendations, more than 29% of the respondents did not know or did not answer the question (excluding those who avoided the question because of an absence of guidelines or local protocols).

Among this large majority that routinely used oxygen, 45% (61/133) believed that it decreases pain, 51% (68/133) believed it reduces mortality and 28% (37/133) believed it lowers both outcomes.

Regarding knowledge of the guidelines in this group of respondents, a noteworthy finding was that 30% (40/133) denied there was or did not know the recommendation; 23% (31/133) knew the CPG recommendation and (perhaps because of it) treat patients with oxygen despite not believing that oxygen improves AMI-related mortality or pain. On comparing the responses by type of training (cardiologists and intensive care specialists versus emergency department physicians), only slight differences were observed in beliefs about the effect of oxygen on mortality and knowledge of the CPG recommendations (Table 2).

Discussion

The results show that the routine use of oxygen therapy in AMI is practised by the majority of physicians surveyed, and the data suggest that it is based (at least in part) on the belief in its beneficial effects on pain and mortality. CPG recommendations seem to have less influence on this practice. However, the validity of these data is crucially dependent on the research techniques used, including sampling and web-survey. The use of internet in health research is undoubtedly attractive^{12,13}, but internet techniques are still evolving and pose special methodological problems (which have even required the development of a formal convention for the elaboration of these studies¹⁴). Therefore this discussion focuses on the impact of the method on the validity of these results.

Regarding the study population, the samples were selected in order to capture the viewpoints of professional groups attending AMI patients (theoretical sampling). Regarding the groups: that of the SVMUE was formally convenience sampling (based on availability) and the other two cases it was a probability sample in the context of a closed population.

Table 1. Survey Results

	Number	Percentage
In your practice, do you treat AMI patients with oxygen?		
Always	68	40.2
Always, unless contraindicated	47	27.8
Usually	30	17.8
Sometimes	9	5.3
Not applicable	3	1.8
Only if specifically indicated	12	7.1
Approximately how many AMI patients do you treat per year?		
0	2	1.2
1-10	21	12.9
11-25	19	11.7
26-50	33	20.2
Over 50	88	54.5
Lost	6	-
Do you think the oxygen reduces pain in patients with AMI?		
Yes, usually	10	6.3
Usually	29	18.4
Sometimes	30	19.0
Rarely	36	22.8
Never	31	19.6
It may even worsen	3	1.9
Do not know	19	12.0
Lost	11	-
Do you think that oxygen reduces AMI-related mortality?		
Yes, it has a clear effect	30	19.1
Probably yes	40	25.5
Yes, but the effect is not great	15	9.6
I do not know	36	22.9
No, it has no effect	36	22.9
Lost	12	-
Does your local CPG protocol recommend the use of oxygen therapy?		
Yes	98	63.2
No	27	17.4
We have no local CPG	10	6.5
I do not know	6	3.9
Yes, but only in specific circumstances	14	9.0
Lost	14	-
Please indicate your professional status:		
Resident	0	0
Hospital physician	136	88.4
Family doctor (GP)	17	10.9
Nurse	0	0
Other	2	1.3
Lost	14	-
What is your specialty?		
Emergency Medicine	29	18.8
Cardiology	89	57.4
Internal Medicine	9	5.8
Family practice	13	8.4
Intensive Care Medicine	12	7.7
Other	3	1.9
Lost	14	-

AMI: acute myocardial infarction. CPG: clinical practice guideline.

With the convenience sample, no assessment of the response rate was performed because there was no denominator available (the person visiting the website optionally filled in the questionnaire). In the case of the group from the Ischemic Heart Disease section of SEC, one can not know the rate of message receipt because the emails were sent

Table 2. Comparison of responses to two particular questions between physicians with different training profiles

	Cardiologists & ICU specialists N (%)	Emergency Department physician N (%)	Total	P
Do you think that oxygen reduces mortality?				< 0.001
Yes	33 (32.0)	37 (68.5)		
No	42 (40.8)	9 (16.7)		
I do not know	28 (27.2)	8 (14.8)	157	
Does the CPG recommend the use of oxygen?				< 0.001
Yes	70 (69.3)	28 (51.4)		
No	9 (8.9)	18 (33.3)		
I do not know	22 (21.8)	8 (14.8)	155	

CPG: clinical practice guideline.

by institutional mode and the institution maintains a policy of data protection. There is a possibility that some mail may have been rejected or was not read. In clinician populations, the proportion of erroneous email reception is almost 20%¹⁵ and the proportion of those who do not check their mail is unknown. We do not know the impact of this factor on our study, nor do we know the percentage of people who do not usually use institutional mail, but the above situations undoubtedly exist, which is why we believe that the response rate was clearly an underestimate.

The response rate from the second sample was much higher (30%), which is probably related with greater effort in dissemination and local encouragement, but especially due to better estimation of the index of receipt and thus the of the denominator to calculate the rate. We also know that some of the people invited to participate had technical difficulties in answering because of very strict corporate systems of email protection. Therefore, we believe this second sample response rate was also underestimated.

Despite what has been said, the participation rate was lower than expected. Participation rate is a recurring problem in health research surveys, and in classical surveys the factors associated with a good rate of response are known and have been subjected to systematic review¹⁶. Participation rate in electronic surveys presents problems that are common to classical surveys and, in addition, some that are specific to this medium; one of them is a lower than expected response rate. Indeed, participation rates range 7-44% for web-based surveys, 7-68% for email surveys and 25-50% for combined web and email surveys¹⁷. This wide variability is related to differences in populations, the topics of interest, levels of digital literacy and in the different ways of calculating rates.

Still, it is likely that the rates published are too high due to a possible publication bias (if the response rate is lower than expected, the result is

not submitted for publication or rejected by the publishing journal).

Factors related to good response to electronic surveys have also been subjected to systematic review¹⁸ which identified as relevant the number of contacts, personalization, previous contacts and especially incentives. In our study, the participation rates were similar to those obtained by others¹⁹, and in any case we believe they are underestimated. We therefore consider them acceptable, considering the use of a single invitation and the absence of incentives to respond.

The completion rate (92%) may be regarded as excellent (those that started the survey usually completed it) while the sequence of dropouts at each question (6, 11, 12, 14) shows a large initial step and then a gentle slope. This indicates that the questions were not unduly complicated or hurtful to the respondent and also is related with the characteristics of the questionnaire, particularly the presence of escape responses and the possibility of stopping and then resuming.

The question arises as to whether it would have been preferable to use conventional mail for the survey. The effectiveness of both options has been compared in many randomized trials in populations and situations, generally showing more favourable results with normal mail, although everyone agrees that the speed, ease, and cost-effectiveness tip the balance in favour of electronic methods^{20,21}. We consider that, despite the above-mentioned limitations, both the sampling and the method of carrying out the study were valid and constituted the most cost-effective design from the options available.

Undoubtedly, the bias of non-responders is present in any survey. We can not know whether the group of non-responders show differences in practice or confessed beliefs as compared with the responders. However, the proportions of responders were stable in the three samples of this study and that the same questionnaire used in a

United Kingdom survey²² (with a similar population and convenience sampling) yielded similar results, which reinforces the external validity of our results.

Some reflection is warranted on how the belief developed that routine oxygen therapy in AMI has a beneficial role. Actually there are no studies showing that its use improves the deficit of oxygen and nutrients in the ischemic area, although some authors of pathophysiological studies have alluded to the complex relationship between oxygen therapy and collateral circulation in situations of obstruction. Human studies provide weak evidence suggesting its use: Horvat et al²³ indicate a possible beneficial effect of oxygen on angina threshold induced by stimulation but not on angina threshold induced by exercise²⁴, while Madias and Hood suggest that routine administration of oxygen in AMI patients reduces infarct size estimated by mapping changes in ST⁷. However, this latter study was not randomized, oxygen administration was not standardized, and measurement of ST was not blinded, all of which make it of dubious validity.

Even more interesting is to consider the data suggesting a possibly damaging effect of oxygen therapy. Indeed, Bourassa et al²⁵ showed increased concentration of lactate-pyruvate in the coronary sinus after oxygen administration in patients with disease in three vessels, and more recently McNulty et al²⁶ (using intracoronary ultrasound) showed that, in patients with stable coronary disease, oxygen administration induced coronary vasoconstriction and increased coronary resistance.

In summary, there is no evidence demonstrating the benefit of oxygen therapy in patients with complicated AMI, while current data suggest a possible adverse effect, and there are mechanisms that make oxygen-induced damage plausible. From our study we conclude, with reservation, that the administration of oxygen in AMI is a widespread practice, and that practice is largely based on clinician beliefs about its positive impact on pain and mortality and to a much lesser extent on CGP recommendations.

These data should be taken into account in the design and performance of future studies (randomized trials) to inform clinician participants and ensure the feasibility of such studies.

References

- 1 Aros F, Loma-Orsorio A, Alonso A, Alonso JJ, Cabades A, Coma-Canelles I, et al. The clinical management guidelines of the Sociedad Española de Cardiología in acute myocardial infarct. *Rev Esp Cardiol*. 1999;52:919-56.
- 2 Antman EM. Methodology Manual for ACC/AHA Guideline Writing Committees. <http://www.acc.org>. (Consultado 2 Enero 2008). Disponible en: <http://www.acc.org/qualityandscience/clinical/manual/pdfs/methodology.pdf>
- 3 Antman EM, Anbe DT, Armstrong PW, Bates ER, Green LA, Hand M, et al. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction--executive summary: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 1999 Guidelines for the Management of Patients With Acute Myocardial Infarction). *Circulation*. 2004;110:588-636.
- 4 Anderson JL, Adams CD, Antman EM, Bridges CR, Califf RM, Casey DE, Jr, et al. ACC/AHA 2007 guidelines for the management of patients with unstable angina/non ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Writing Committee to Revise the 2002 Guidelines for the Management of Patients With Unstable Angina/Non ST-Elevation Myocardial Infarction): developed in collaboration with the American College of Emergency Physicians, the Society for Cardiovascular Angiography and Interventions, and the Society of Thoracic Surgeons; endorsed by the American Association of Cardiovascular and Pulmonary Rehabilitation and the Society for Academic Emergency Medicine. *Circulation*. 2007;116:e148-e304.
- 5 Scottish Intercollegiate Guidelines Network. Acute coronary Syndrome. A national clinical guideline. (Consultado 2 Enero 2008). Disponible en: <http://www.sign.ac.uk/pdf/sign93.pdf>
- 6 Maroko PR, Radvany P, Braunwald E, Hale SL. Reduction of infarct size by oxygen inhalation following acute coronary occlusion. *Circulation*. 1975;52:360-8.
- 7 Madias JE, Hood WB, Jr. Reduction of precordial ST-segment elevation in patients with anterior myocardial infarction by oxygen breathing. *Circulation*. 1976;53(Suppl. 3):1198-1200.
- 8 Bassand JP, Hamm CW, Ardissino D, Boersma E, Budaj A, Fernández-Aviles F, et al. Guidelines for the diagnosis and treatment of non-ST-segment elevation acute coronary syndromes. *Eur Heart J*. 2007;28:1598-660.
- 9 Van de WF, Bax J, Betriu A, Blomstrom-Lundqvist C, Crea F, Falk V, et al. Management of acute myocardial infarction in patients presenting with persistent ST-segment elevation: the Task Force on the Management of ST-Segment Elevation Acute Myocardial Infarction of the European Society of Cardiology. *Eur Heart J*. 2008;29:2909-45.
- 10 Beasley R, Aldington S, Weatherall M, Robinson G, McHaffie D. Oxygen therapy in myocardial infarction: an historical perspective. *J R Soc Med*. 2007;100:130-3.
- 11 Burls A, Empranza JJ, Baily S, Quinn T, Cabello JB. Oxygen therapy for acute myocardial infarction. *Cochrane Database of Systematic Reviews*. 2008;(2):CD007160. DOI: 10.1002/14651858.CD007160
- 12 Ekman A, Litton JE. New times, new needs; e-epidemiology. *Eur J Epidemiol*. 2007;22:285-92.
- 13 Eysenbach G, Wyatt J. Using the Internet for surveys and health research. *J Med Internet Res*. 2002;4:E13.
- 14 Eysenbach G. Improving the quality of Web surveys: the Checklist for Reporting Results of Internet E-Surveys (CHERRIES). *J Med Internet Res*. 2004;6:e34.
- 15 McMahon SR, Iwamoto M, Massoudi MS, Yusuf HR, Stevenson JM, David F, et al. Comparison of e-mail, fax, and postal surveys of pediatricians. *Pediatrics*. 2003;111:e299-e303.
- 16 Edwards PJ, Roberts I, Clarke M. Methods to influence response to postal questionnaires. *Cochrane Database of Systematic Reviews* 2003;(Issue 4. 2003): Art. No.: MR000008. DOI:10.1002/14651858.MR000008.pub3
- 17 Shonlau M, Fricker R, Elliott M. Literature review of web and E-mail surveys. *Conducting research surveys via E-mail and the web*. Santa Monica CA: RAND; 2002. pp. 19-32.
- 18 Cook C, Heath F, Thompson RL. A meta-analysis of response rates in web-or internet-based surveys. *Educational and psychological measurement*. 2000;60:821-36.
- 19 Schonlau M. Will web surveys ever become part of mainstream research? *J Med Internet Res*. 2004;6:e31.
- 20 Kongsved SM, Basnov M, Holm-Christensen K, Hjollund NH. Response rate and completeness of questionnaires: a randomized study of Internet versus paper-and-pencil versions. *J Med Internet Res*. 2007;9:e25.
- 21 Leece P, Bhandari M, Sprague S, Swiontkowski MF, Schemitsch EH, Tornetta P, et al. Internet versus mailed questionnaires: a randomized comparison. *J Med Internet Res*. 2004;6:e30.
- 22 Burls AJ, Empranza JJ, Quinn T, Cabello JB. Oxygen use in acute myocardial infarction - an online survey of health professionals' practice and beliefs. *Emerg Med J*. 2009 (in press).
- 23 Horvat M, Yoshida S, Prakash R, Marcus HS, Swan HJ, Ganz W. Effect

of oxygen breathing on pacing-induced angina pectoris and other manifestations of coronary insufficiency. *Circulation*. 1972;45:837-44.
24 Lecerof H. Central haemodynamics during oxygen breathing in angina pectoris. *Thorax*. 1974;29:673-7.
25 Bourassa MG, Campeau L, Bois MA, Rico O. The effects of inhalation

of 100 percent oxygen on myocardial lactate metabolism in coronary heart disease. *Am J Cardiol*. 1969;24:172-7.
26 Mc Nulty PsH, King N, Scott S. Effects of supplemental oxygen administration on coronary blood flow in patients undergoing cardiac catheterization. *Am J Physiol Heart Cir Physiol*. 2005;288:H1057-H1062.

Oxigenoterapia en el infarto agudo de miocardio: una encuesta-web sobre la práctica y las creencias de los clínicos

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Objetivos: La administración rutinaria de oxígeno en el infarto agudo de miocardio (IAM) es una práctica sometida a debate especialmente tras la aparición de una revisión Cochrane de oxígeno vs aire que muestra un importante, aunque no significativo, aumento de la mortalidad (RR: 3,03, IC 95%: 0,93-9,93) en el grupo tratado con oxígeno y concluye que debe realizarse un ensayo clínico aleatorio que ofrezca evidencia definitiva. El objetivo de este estudio es conocer extensión del uso de la oxigenoterapia en el IAM no complicado y las creencias de los clínicos al respecto.

Método: Se usó un método combinado de invitación por correo electrónico a una muestra teórica de profesionales que atienden al IAM y un cuestionario a cumplimentar *on-line* en la web.

Resultados: El 86% de los encuestados usan rutinariamente el oxígeno en el IAM no complicado, casi la mitad (44%) cree que mejora el dolor y más de la mitad (54%) cree que tiene algún efecto beneficioso sobre la mortalidad. Casi el 29% de los participantes desconocen las recomendaciones de la guías al respecto. Se aprecian mínimas diferencias en las creencias de los clínicos según su especialidad.

Conclusiones: La oxigenoterapia en IAM es una práctica muy extendida, que se justifica en parte por la creencia de que mejora el dolor o/y la mortalidad. La creencia deberá ser tenida en cuenta en los diseños de investigación futuros. [Emergencias 2009;21:422-428]

Palabras clave: Infarto agudo de miocardio. Oxigenoterapia. Internet. Encuestas electrónicas (e-encuestas).