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BRIEF REPORTS

National and International Impact Factor of REVISTA ESPAÑOLA DE CARDIOLOGÍA

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The aim of this paper is to present the bibliometric indicators for REVISTA ESPAÑOLA DE CARDIOLOGÍA that were obtained from the "Potential impact factor of Spanish medical journals in 2001" study financed by the Spanish Ministerio de Educación, Cultura y Deporte. Citations to REVISTA ESPAÑOLA DE CARDIOLOGÍA, its national and international impact factor, and its immediacy index were calculated with methods similar to those used by the Institute for Scientific Information. National indicators were based only on citations from 87 Spanish journals considered source journals, whereas international indicators were calculated on the basis of citations from both national journals and foreign source journals in the Science Citation Index. REVISTA ESPAÑOLA DE CARDIOLOGÍA obtained a national impact factor of 0.719 and an international impact factor of 0.837, placing it at the head of the ranking of Spanish medical journals.

Key words: *Impact factor. Immediacy index. Spanish medical journals. Revista Española de Cardiología.*

Factor de impacto nacional e internacional de REVISTA ESPAÑOLA DE CARDIOLOGÍA

El objetivo de este trabajo es presentar los indicadores bibliométricos de REVISTA ESPAÑOLA DE CARDIOLOGÍA obtenidos del estudio «Factor de impacto potencial de las revistas médicas españolas en 2001», financiado por el Ministerio de Educación Cultura y Deporte español. Siguiendo una metodología similar a la que emplea el Institute for Scientific Information, se han obtenido las citas de REVISTA ESPAÑOLA DE CARDIOLOGÍA y su factor de impacto e índice de inmediatez nacionales e internacionales. Los indicadores nacionales tienen en cuenta únicamente las citas procedentes de 87 revistas españolas seleccionadas como fuentes, mientras que para el cálculo de los indicadores internacionales se han sumado a las citas anteriores las que proceden de las revistas fuente extranjeras del Science Citation Index. REVISTA ESPAÑOLA DE CARDIOLOGÍA ha obtenido un factor de impacto nacional de 0,719 y un factor de impacto internacional de 0,837, lo que la sitúa en posiciones de liderazgo en la medicina española.

Palabras clave: *Factor de impacto. Índice de inmediatez. Revistas médicas españolas. Revista Española de Cardiología.*

INTRODUCTION

In recent years bibliometric indicators of impact published by the Institute for Scientific Information (ISI) in their Journal Citation Reports (JCR) have become—despite their criticisms and limitations—indicators of quality, prestige, and dissemination of science journals. However, because of the limited coverage of these databases (the 2001 JCR included only 13 Spanish medical journals), complementary studies are commonly done to determine the impact factor (IF) and other indicators for journals not included in the ISI databases.[1-6]

Within this context the *Factor de impacto potencial de las revistas médicas españolas* study (Potential impact factor of Spanish medical journals), financed by the Dirección General de Universidades of the Spanish Ministry of Education, Culture and Sports, made it possible to calculate the 2001 IF and immediacy index for a selection of 87 Spanish me-

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TABLE 1. **National and International Impact Factors and Immediacy Indexes for Revista Española de Cardiología in 2001**

National impact factor and immediacy index

Citations, Articles and Indicators

Citations in 2001 to Documents From			Year of Publication			Impact factor Index in 2001	Immediacy Index in 2001
1999	2000	2001	1999	2000	2001		
113	144	49	176	181	169	0.719	0.289
	Total citations	306		Total articles	526		

How the Index is Calculated

Indicator	Citations 1999 + Citations 2000	Articles 1999 + Articles 2000	Operation	Result
Impact factor in 2001	113+144	176+181	(113+144)/(176+181)	0.719
Indicator	**Citations 2001**	**Articles 2001**	**Operation**	**Result**
Immediacy index in 2001	49	169	49/169	0.289

International impact factor and immediacy index

Citations, Articles, and Indicators

Citations in 2001 to Documents From			Year of Publication			Impact Factor in 2001	Immediacy Index in 2001
1999	2000	2001	1999	2000	2001		
143	156	52	176	181	169	0.837	0.307
	Total citations	351		Total articles	526		

How the Index is Calculated

Indicator	Citations 1999 + Citations 2000	Articles 1999 + Articles 2000	Operation	Result
Impact factor in 2001	143+156	176+181	(143+156)/(176+181)	0.837
Indicator	**Citations in 2001**	**Articles in 2001**	**Operation**	**Result**
Immediacy index in 2001	52	169	52/169	0.307

dical journals.[7] This study calculated two types of IF: national and international. The aim of the present article is to present the indicators obtained for Revista Española de Cardiología in 2001 from both a national and an international perspective, and to compare these figures with those of other Spanish medical journals.

MATERIALS AND METHODS

Because inclusion of a given journal in the bibliometric databases is considered a solid quality criterion[1,8], we selected the 87 journals included in the IME/Índice Médico Español database and some international databases considered among the most important in health sciences[9]: Medline, Excerpta Medica, Biosis, and Science Citation Index (SCI).

Indicators were calculated for national and international IF. Citable articles were chosen from the 87 national source journals, and 3547 references to these journals were identified in 1999, 2000, and 2001. Citable articles were defined according to methods used by the ISI as original research articles, reviews, and notes.

The IF for a given journal was calculated as the number of citations appearing in all journals included here in 2001 to documents published in 1999 and 2000 in that journal, divided by the number of documents the journal published in those years. The immediacy index was calculated as the citations received in 2001 divided by the number of articles published in that year. The international IF was calculated using the sum of citations from different sources in the numerator: citations from the 87 Spanish source journals and citations to these journals appearing in foreign journals in the SCI. These latter citations were identified by searching SCI with the *cited ref search (timespan* = 2001) option, combining

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TABLE 2. **Indicators of Impact in 2001 of Selected Spanish Cardiology Journals***

	No. Citations (SCI + Spanish)			NIF	NII	IIF	III
	1999	2000	2001				
Cardiology journals							
Angiología	0	1	0	0.018	0	0.018	0
Anales de Cirugía Cardíaca y Cirugía Vascular	0	1	1	0.025	0.083	0.025	0.083
Revista Española de Cardiología	143	156	52	0.719	0.289	0.837	0.307
Revista Latina de Cardiología	0	1	0	0.019	0	0.019	0
Internal medicine journals							
Anales de Medicina Interna	36	28	2	0.206	0.017	0.253	0.017
Medicina Clínica	321	327	120	0.89	0.481	1.125	0.506
Revista Clínica Española	68	38	10	0.267	0.081	0.341	0.081
Revista de Medicina de la Universidad de Navarra	1	0	0	0.024	0	0.024	0

*IIF indicates international impact factor; NIF, national impact factor; III, international immediacy index; NII, national immediacy index; SCI, Science Citation Index.

the fields *cited work* (using abbreviated titles of Spanish journals) and *cited year* (with the search strategy "1999 OR 2000 OR 2001"). Incomplete standardization of journal title abbreviations in this search system and inconsistent application of the time limits specified in the search strategy might introduce errors in the number of citations. The following steps were therefore taken to avoid potential miscalculation: all searches included all possible abbreviations for any given journal title, pertinence of the cited journals was checked, and year of publication of the citing journal was checked to ensure the citation appeared in 2001. The resulting international IF therefore took Spanish journals into account as long as they were included as source journals in SCI.

RESULTS

The data for citations, articles and indicators for Revista Española de Cardiología are shown in Table 1. The journal received 351 citations in 2001, of which 306 (87.2%) were from Spanish journals and 45 (12.8%) were from foreign journals. Of the citations from Spanish journals, 73.2% were self-citations.

The journal obtained a national IF of 0.719, placing it fourth in the ranking of the 87 journals analyzed here, behind *Revista Española de Quimioterapia* (IF=0.894), *Medicina Clínica* (IF=0.89) and *Archivos de Bronconeumología* (IF=0.732). This IF is much higher than that of other journals in the same specialty area, such as *Revista Latina de Cardiología* (IF=0.039), *Anales de Cirugía Cardíaca y Cirugía Vascular* (IF=0.025), and *Angiología* (IF=0.018), and is also higher than the IF of internal medicine journals (Table 2), surpassed only by *Medicina Clínica.* The national immediacy index was 0.289. Its international IF (IIF=0.837) places Revista Española de Cardiología fifth in the ranking, behind *Histology and Histopathology* (IIF=1.866), *International Journal of Developmental Biology* (IIF=1.654), *Medicina Clínica* (IF=1.125) and *Revista Española de Quimioterapia* (IIF=1.052). However, the international IF of Revista Española de Cardiología is also higher than that of other specialty journals. Table 3 lists the Spanish jour-

TABLE 3. Citations in 2001 From Spanish Journals to Articles Published in 1999-2001 in Revista Española de Cardiología

Journal	Years Cited			
	1999	2000	2001	Total
Revista Española de Cardiología	78	104	42	224
Medicina Clínica	9	6	1	16
Revista Latina de Cardiología	7	8	0	15
Medicina Intensiva	5	5	0	10
Anales de Medicina Interna	1	6	1	8
Medifam. Revista de Medicina Familiar y Comunitaria	2	3	1	6
Anales Españoles de Pediatría	2	3	0	5
Revista Clínica Española	3	1	1	5
Revista de Medicina de la Universidad de Navarra	1	0	3	4
Revista Española de Medicina Nuclear	1	3	0	4
Anales de Cirugía Cardíaca *y Cirugía Vascular*	0	1	0	1
Atención Farmacéutica	1	0	0	1
Gaceta Sanitaria	1	0	0	1
Investigación Clínica	0	1	0	1
Nefrología	1	0	0	1
Revista Española de Anestesiología y Reanimación	0	1	0	1
Revista Española de Geriatría y Gerontología	0	1	0	1
Revista Española de Reumatología	1	0	0	1
Revista Española de Salud Pública	0	1	0	1
Total	113	144	49	306

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nals that cited Revista Española de Cardiología during 1999 to 2001 and that were included in the calculations we used to obtain the indicators reported here.

DISCUSSION

The bibliometric indicators of impact obtained by Revista Española de Cardiología place it near the head of the ranking among Spanish cardiology and internal medicine journals. The improvements in these indicators are most likely the result of policies implemented by the editors to enhance formal quality and quality of the contents[10-14] and the rigor of the peer review process,[15] to provide access to the full text of articles on the Internet, and to offer English-language publication.[16] Proof of the effect of these improvements comes from the fact that its IF in JCR rose from 0.460 in 1999 to 0.700 in 2000 and 2001, and increased again to 0.940 in 2002.[13] The gain in international IF in comparison to the 2001 figure in JCR is 0.137, making it likely that the 2002 international IF will be higher than 1.00 if we consider citations from other Spanish journals not included as source journals in SCI.

The data this analysis has yielded should be interpreted with caution. Despite the widespread notion that more frequent citations mean better quality, this assumption holds only in certain cases, and the lack of impact does not mean that the journal lacks quality or does not fulfill a useful role in knowledge transmission.[17,18] Calculating citations and impact indictors provides a measure of the usefulness of journals, not a measure of their quality. Authors do not only cite articles of higher quality, but also cite those that have been most useful for their own work.[2,3] Moreover, these indicators should not be used to compare journals from different specialties, as each area has its own patterns of citation, making comparisons between them useless.[2,3,17,18]

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