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Sexual Dysfunction

An Evidence-Based Evaluation of Health Information on Erectile Dysfunction From 10 Nationwide Daily Newspapers in Korea

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Purpose: A rapid growth in the socioeconomic status of Koreans has triggered an unprecedented explosion of health information for the general population. Despite its obvious benefits, this increase in information could also result in potentially harmful effects for both consumers and professionals who do not use it appropriately. Thus, this study was conducted to evaluate the quality and accuracy of health information on erectile dysfunction from 10 nationwide daily newspapers.

Materials and Methods: This study analyzed health information from 10 nationwide daily newspapers in Korea from January 2011 through December 2011. We reviewed the health information for quality by using evidence-based medicine tools and evaluated the accuracy of the information provided. Articles that simply summarized scientific congresses or journal articles and that did not include direct quotations were excluded, as were advertisements.

Results: A total of 47 articles were gathered. Among them, 27 (57.4%) contained inaccurate or misleading statements on the basis of an evidence-based medicine evaluation. These statements included using inappropriate surrogate outcomes as clinical endpoints (three cases, 6.4%), extrapolating nonhuman results to humans (two cases, 4.3%), exaggerating the significance of results (eight cases, 17.0%), and using incorrect words (14 cases, 29.8%). The rate of error was higher in the information from Korean sources than in that from international sources (22 cases vs. 5 cases).

Conclusions: Approximately 57% of all articles on erectile dysfunction from 10 nationwide daily newspapers were found to contain inaccuracies.

Keywords: *Erectile dysfunction; Evidence-based medicine; Newspapers*

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INTRODUCTION

The general public is exposed to multiple sources of information on medicine, either through traditional mass media (e.g., television, journals, and radio) or through the Internet (e.g., blogs, Twitter, Facebook, and the many features of Web 2.0) [1,2]. The media's potential to reach large audiences gives it an important role in providing health-related information, shaping public health-related beliefs, and influencing health behaviors [3]. However, medical information published in newspapers can often be based on scant evidence because of a lack of specialized knowledge of medical journalists, criticisms of medical information in newspapers, and a lack of available time to secure strong evidence prior to copy deadlines. In addition, information from newspapers, which should be understood by the general population, is sometimes an exaggeration or overstatement.

Erectile dysfunction is defined as a consistent or recurrent inability of a man to obtain and/or maintain a penile erection sufficient for sexual activity [4]. A duration of symptoms of at least 3 months is considered acceptable to

establish a diagnosis of erectile dysfunction, except in some instances of trauma or surgery [5]. Erectile dysfunction affected about 150 million men worldwide in 2000, and this number is expected to double by 2025 as a result of improved life expectancy and the age-related nature of erectile dysfunction [6]. This disorder is also associated with lower overall life satisfaction scores, mental health quality of life (QoL) scores, and vitality QoL scores [7]. Many patients look for information on erectile dysfunction from various media outlets, and commercials on treatment for erectile dysfunction have been developed. Recently, Sugita and Miyakawa [8] reported that the size of the Japanese market for counterfeit phosphodiesterase-5 inhibitors was estimated to be about 2.5 times larger than that for genuine phosphodiesterase-5 inhibitors.

The aim of the present study was to evaluate the accuracy of news information on erectile dysfunction from 10 nationwide newspapers. Our present study will add to the growing body of research documenting the nature and influence of news information on erectile dysfunction in Korea.

MATERIALS AND METHODS

1. Data sources

Articles on erectile dysfunction from 10 nationwide daily newspapers in Korea from January 2011 through December 2011 were evaluated in this study. The newspapers included were the Kyunghyang Shinmun, the Kukminilbo, the Dong-A Ilbo, the Munhwa Ilbo, the Seoul Shinmun, the Segye Ilbo, the Hankyoreh, the Hankok Ilbo, the Chosun Ilbo, and the Korea Joongang Daily. Newspaper articles or columns that reported results of clinical or experimental studies were included; however, articles that discussed disease occurrence, accidents, crime, policies, social phenomena related to medicine, questionnaire surveys, educational information, esoteric medical information from unreliable sources, and advertisements were excluded. News articles that summarized scientific congresses or journal articles that did not include direct quotations were also excluded. Because a public set of data was used that did not include personal data, the present study was exempted from Institutional Review Board review.

2. Data extraction and analysis

The websites of both the Chosun Ilbo and Korea Joongang Daily (http://www.chosun.com and http://joongang.joinsmsn.com) newspapers were used to search for relevant articles, whereas the website of the Korean Press Foundation (http://www.kinds.or.kr) was used to search for articles from the other newspapers identified above. Searching was not performed by using the real newspaper. However, the Korean Press Foundation supplied the nearest article in the printed version. The keywords searched included *balgibujeon* as erectile dysfunction in Korean. Before the study, we identified 20 articles in a pilot test to confirm the evaluation process for interpretation. All newspaper articles were separately extracted by two researchers (Y.S.H. and J.Y.L.). Differences in the results of the extraction and interpretation were discussed, and agreement was sought from a senior physician specializing in andrology (K.S.C.).

3. Interpretation of news articles

The articles were first categorized into articles with accurate statements and articles with inaccurate or misleading statements. On the basis of a previous study [9], articles with inaccurate or misleading statements were subclassified into four groups: 1) using inappropriate surrogate outcomes as clinical endpoints, 2) extrapolating nonhuman results to humans, 3) exaggerating the significance of results, and 4) using incorrect words.

Surrogate outcomes are defined as physiological or anatomical results; however, clinical endpoints are defined as patient-related or functional outcomes, such as symptomatic improvement, recovery of normal activity, and survival. Traditionally, surrogate outcomes have been interpreted as clinical endpoints, although the two should not be considered equivalent [10]. For instance, an article on post-prostatectomy-induced erectile dysfunction that could be cured by mesenchymal stem cells demonstrated a typical example of confusing surrogate outcomes with end outcomes. Interpretation of results obtained from a limited study design may be exaggerated. Results from animal experimental research or the use of cell lines may be inappropriately interpreted as equivalent to human data. Although experimental, physiological, and animal studies are valuable and useful, they do not directly influence clinical decisions [11]. For example, the results of therapeutic effectiveness may be misinterpreted as preventive effectiveness. Finally, the use of incorrect words suggests that subjective and apocryphal terminologies may have been used.

4. Statistical analyses

Data extraction, sharing, and cooperation with our researchers were performed by using Google Drive (http://drive.google.com) and Google Docs (Google Inc., Mountain View, CA, USA). A Pearson chi-squared test and Fisher exact test were used to compare distributions of categorical values, and statistical analyses were performed by using R (R ver. 2.15.3, R Foundation for Statistical Computing, Vienna, Austria; http://www.r-project.org). A p-value less than 0.05 was considered statistically significant.

RESULTS

1. Data extraction

After website searches, a total of 188 news articles on erectile dysfunction from 10 newspapers in 2011 were reviewed. Of these, 47 articles on erectile dysfunction were included (Fig. 1); excluded articles were those discussing disease occurrence (16), accidents (11), crime and policy (7), social phenomena related to medicine (5), questionnaire surveys (4), educational information (4), esoteric medical information from unreliable sources (63), and advertise-

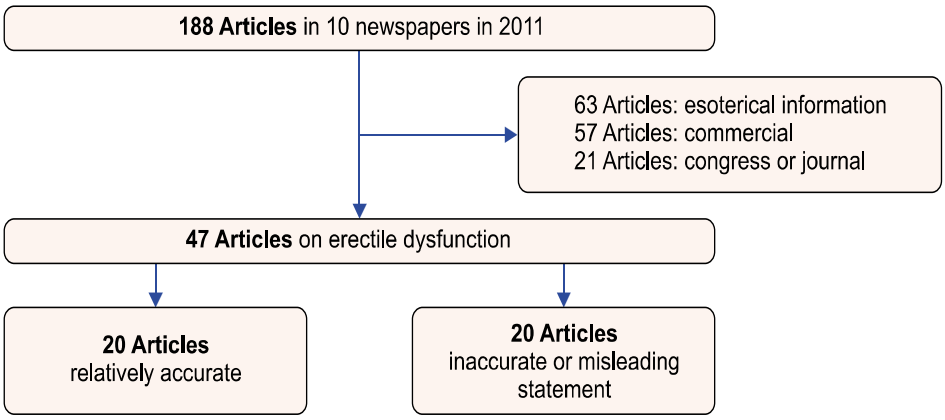

FIG. 1. Flow diagram on the extraction and collection of articles on erectile dysfunction from 10 nationwide newspapers in 2011.

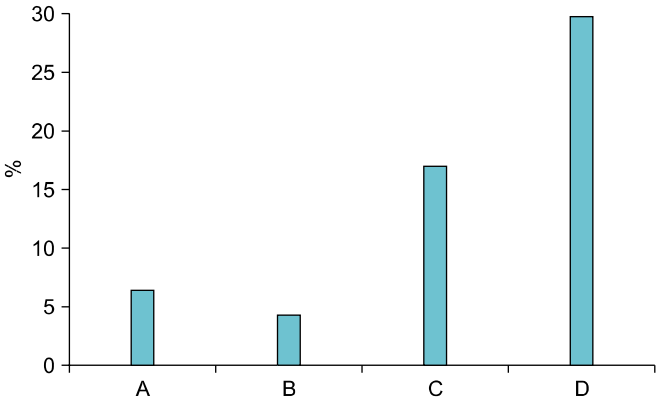

FIG. 2. Evidence-based evaluation of inaccurate health information. A. confusing surrogate outcomes with end outcomes; B, extrapolating nonhuman results to humans; C, exaggerating the interpretation of results; and D, using incorrect words.

TABLE 1. Comparison of the rate of inaccurate or misleading statements in articles on erectile dysfunction from 10 nationwide newspapers in 2011 according to Korean or foreign sources

	Korean sources (%)	Foreign sources (%)	p-value
Confusing surrogate outcomes with end outcomes	2 (9)	1 (20)	0.474[a]
Extrapolating nonhuman results to humans	1 (5)	1 (20)	0.342[a]
Exaggerating interpretation of results	6 (27)	2 (40)	0.615[a]
Using incorrect words	13 (59)	1 (20)	0.164[a]
Total	22 (100)	5 (100)	0.366[b]

[a]:Fisher exact test. [b]:Chi-square test.

ments (57). In addition, 21 articles that summarized scientific congresses or journal articles were also excluded. Our exclusion criteria were based on the concept that simple reporting of an article without discussion of the outcomes of the research was not new health information.

2. Interpretation

Of the 47 articles that met our inclusion criteria, 27 (57.4%) contained inaccurate or misleading statements on the basis of an evidence-based medicine evaluation. These included using inappropriate surrogate outcomes as clinical endpoints (three cases, 6.4%), extrapolating nonhuman results to humans (two cases, 4.3%), exaggerating the significance of results (eight cases, 17.0%), and using incorrect words (14 cases, 29.8%; Fig. 2). The rate of error was higher in information from Korean sources than in information from international sources (22 cases vs. 5 cases). However, there were no significant differences between Korean and foreign sources in any category (Table 1). There were also no differences between articles written by general journalists and those written by medical journalists or specialists (13 cases by general journalists vs. 14 cases by medical journalists).

DISCUSSION

Today, health is one of the main topics covered by the mass media. Good health is a prime global concern, and various factors including economic development play a significant role in shaping and defining a population's perception of health [12]. In particular, men's health, including erectile dysfunction and andropause, are important matters in developing and developed countries. In Asia, the Men's Attitudes to Life Events and Sexuality (MALES) study, which studies the prevalence and treatment of erectile dysfunction in China, Japan, Korea, Malaysia, and Taiwan, reported that 6.4% of 10,934 men between 20 and 75 years of age self-reported erectile dysfunction, and 83.5% found suitable treatments in the media [13]. Tannenbaum [14], in a survey on men's health of 2,325 Canadians between 55 and 97 years of age, reported that 35.7% of men surveyed, especially those of a younger age, showed an interest in erectile dysfunction. In an epidemiological study on erectile dysfunction in Korean men, the rate of self-reported erectile dysfunction was 13.4% in 1,570 men aged 40–75 years, and the percentage of men scoring fewer than 17 points on the International Index of Erectile Function scale was 32.4%, demonstrating a high prevalence of erectile dysfunction among Korean men [15]. Thus, the prevalence

of erectile dysfunction is high, particularly in developed countries like Korea.

It might be difficult for men with erectile dysfunction who are keen to receive treatment to find a urologist, schedule an interview, and finally receive medical treatment. Kang et al. [16] reported on the numbers of prescriptions written for phosphodiesterase-5 inhibitors from each department within three medical institutions in Korea. In their study, the mean rate of prescriptions for phosphodiesterase-5 inhibitors was approximately 46.4% from the urology departments, compared with 33.0% from endocrinology, 5.1% from neurology, 4.4% from cardiology, and 3.9% from family medicine, which indirectly suggests that the medical diagnosis and treatment of erectile dysfunction was relatively low in the urology departments of the three hospitals. Mass media such as newspapers and television broadcasts are alternative sources of medical and health information. With the recent introduction of medical journalists, many medical news articles have appeared in newspapers and television broadcasts and are subsequently redistributed via the Internet. Unfortunately, as shown in our present study, the accuracy of these medicine-related articles can be unreliable.

Hwang et al. [9] performed an evidence-based medical evaluation of health information from the television news. In that study, over an 8-month period, there were 85 such reports on the evening news, and 34 of them (40.0%) were found to be inaccurate or misleading. Our study also showed that 57.4% of newspaper articles contained misinformation. In particular, using inappropriate surrogate outcomes as clinical endpoints was the most frequent error. This could be attributed to the misinterpretation of results owing to inappropriate study designs, or medical researchers assuming that anatomical or physiological endpoints in their studies could be translated directly to represent clinical outcomes in patients, and the ignorance of news reporters on the medical issues they were reporting. The second most common error was exaggerated interpretations of the study results. The reason for this might be that the researchers published exaggerated results, and the news media chose to focus on this misinformation of popular interest. The frequency of errors was higher in articles from Korean sources than in articles from foreign sources. News articles from the foreign presses were re-reported by the Korean media mainly because they were easily accessible to the journalists. On the contrary, domestic sources were often more interested in publicizing study researchers and their associated hospitals, often exaggerating claims. It might be very important to consider the conventional Korean media environment. Although the level of Korean media has been increasing, it may report biased content not based on exact evidence.

Because an increasing number of medical commentaries initially reported on television news and newspapers are now available online in media such as Twitter, Facebook, and YouTube, the accuracy of primary sources (i.e., television news and newspapers) has become more crucial. Presently, the Korean Urological Association and the Korean Society for Sexual Medicine and Andrology do not use Twitter or Facebook aggressively, so as to reduce "retweeting" or "liking" misleading information and comments made by the television news or newspapers. To curtail these errors, evidence-based medical methodology must be agreed upon and practiced by all medical journalists and the news media. Doctors must first embrace evidence-based medicine during the course of their training and clinical work and publish their research findings in relevant peer-reviewed journals before making their results public. Additionally, medical journalists should spend more time studying and digesting medical-related information and receive training in evidence-based medicine. Last but not least, both the Korean Urological Association and the Korean Society for Sexual Medicine and Andrology should constantly monitor misleading medical articles and request revisions whenever necessary. It is only through these measures that the general public can be spared the negative effects of medical misinformation.

CONCLUSIONS

Approximately 57% of all articles on erectile dysfunction from 10 nationwide daily newspapers were found to be inaccurate on the basis of an evidence-based medicine evaluation. To this effect, urologists, the Korean Urological Association, and the Korean Society for Sexual Medicine and Andrology play a paramount role in identifying articles containing inaccurate information. In addition, medical journalists should be trained to write articles based on evidence rather than sensation.

CONFLICTS OF INTEREST

The authors have nothing to disclose.

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REFERENCES

1. LOcal Campaign on Antibiotics ALliance (LOCAAL) study group. Doctors and local media: a synergy for public health information?: a controlled trial to evaluate the effects of a multifaceted campaign on antibiotic prescribing (protocol). BMC Public Health 2011;11:816.
2. Lee JY, Kang DH, Moon HS, Kim YT, Yoo TK, Choi HY, et al. Analysis of content legibility for smartphones of websites of the korean urological association and other urological societies in Korea. Korean J Urol 2011;52:142-6.
3. Knudsen AK, Omenas AN, Harvey SB, Lovvik CM, Lervik LV, Mykletun A. Chronic fatigue syndrome in the media: a content

analysis of newspaper articles. JRSM Short Rep 2011;2:42.
4. Lee JY, Cho SY, Oh CY, Ha US, Lee SH, Park SY, et al. Efficacy and safety of combination therapy with mirodenafil and α1-blocker for benign prostatic hyperplasia-induced lower urinary tract symptoms accompanied by erectile dysfunction: a multicenter, open-label, prospective study. Int J Impot Res 2011;23:249-56.
5. Lee JY, Park SY, Jeong TY, Moon HS, Kim YT, Yoo TK, et al. Combined tadalafil and α-blocker therapy for benign prostatic hyperplasia in patients with erectile dysfunction: a multicenter, prospective study. J Androl 2012;33:397-403.
6. Kang DH, Lee JY, Park SY, Moon HS, Jeong TY, Yoo TK, et al. Efficacy and safety of tadalafil 5 mg administered once daily in Korean men with erectile dysfunction: a prospective, multicenter study. Korean J Urol 2010;51:647-52.
7. Tan HM, Tong SF, Ho CC. Men's health: sexual dysfunction, physical, and psychological health: is there a link? J Sex Med 2012; 9:663-71.
8. Sugita M, Miyakawa M. Economic analysis of use of counterfeit drugs: health impairment risk of counterfeit phosphodiesterase type 5 inhibitor taken as an example. Environ Health Prev Med 2010;15:244-51.
9. Hwang YW, Byun JS, Lee KW, Hwang IH, Kim SY. Evidence based evaluation of health information in the television news. J Korean Acad Fam Med 2006;27:523-8.
10. Lavallee LT, Montori VM, Canfield SE, Breau RH. Advanced topics in evidence-based urologic oncology: surrogate endpoints. Urol Oncol 2011;29:447-53.
11. Nobre MR, Bernardo WM, Jatene FB. Evidence based clinical practice. Part III: critical appraisal of clinical research. Rev Assoc Med Bras 2004;50:221-8.
12. Carducci A, Alfani S, Sassi M, Cinini A, Calamusa A. Mass media health information: quantitative and qualitative analysis of daily press coverage and its relation with public perceptions. Patient Educ Couns 2011;82:475-8.
13. Tan HM, Low WY, Ng CJ, Chen KK, Sugita M, Ishii N, et al. Prevalence and correlates of erectile dysfunction (ED) and treatment seeking for ED in Asian men: the Asian Men's Attitudes to Life Events and Sexuality (MALES) study. J Sex Med 2007;4: 1582-92.
14. Tannenbaum C. Effect of age, education and health status on community dwelling older men's health concerns. Aging Male 2012;15:103-8.
15. Ahn TY, Park JK, Lee SW, Hong JH, Park NC, Kim JJ, et al. Prevalence and risk factors for erectile dysfunction in Korean men: results of an epidemiological study. J Sex Med 2007;4: 1269-76.
16. Kang DH, Lee JY, Chung JH, Cho HJ, Cho JM, Moon HS, et al. Analysis of prescriptions of alpha-blockers and phosphodiesterase 5 inhibitors from the urology department and other departments. Int Neurourol J 2011;15:216-21.