The Use of Exaggerative Language in News Articles About Cystic Fibrosis Therapies

Exaggerative Language Describing Cystic Fibrosis Therapies

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INTRODUCTION

When describing novel medical treatments, news articles often use exaggerated language to describe them. Such practices may be particularly problematic if no clinical data exists to provide supporting evidence for these claims. With the increasingly significant role played by Internet-based medical information on screening, clinical decision-making, and overall health outcomes, discretion should be taken to disseminate accurate and unbiased information about pharmaceutical therapies to the public.^{1, 2} Because cystic fibrosis (CF) treatments are expensive—Orkambi, for example, is estimated to cost \$272,000 per year³—and because of novel therapies like Trikafta coming to market, we investigated the use of exaggerated language in news articles covering CF therapies. We also evaluated whether the news sources reporting these stories were compliant with the Health on the Net Foundation Code of Conduct (HONcode) regarding the reliability and credibility of health information.

METHODS

We performed a cross-sectional analysis modeled after Abola and Prasad.⁴ A search was conducted on Google News for articles published between May 22, 2019, and November 22, 2019, containing “cystic fibrosis treatment” in conjunction with 10 prespecified exaggerative terms: “breakthrough,” “cure,” “game changer,” “groundbreaking,” “home run,” “life changing,” “life-saving,” “marvel,” “miracle,” “revolutionary,” and “transformative.” Articles were excluded if these terms were not used to magnify a therapy’s effectiveness or benefit. The following data were extracted from each news article: the article URL, the name of the news outlet, frequency of superlative(s) use, the drug(s) or treatment(s) about which the article was written, drug class, whether the treatment received Food and Drug Administration (FDA) approval, whether the news article referenced clinical data, author’s background (e.g., physician, journalist), and whether the news article referenced a celebrity in the article. Data were extracted using a pilot-tested Google form in a blinded, duplicate

fashion by two of us (DW and RO). We also investigated the reliability of news articles by searching the websites for registration through HONcode certification (www.hon.ch/HONcode/), an ethical and trustworthy code for medical and health-related information available on the Internet.

RESULTS

Our search returned 260 news articles regarding CF treatment, of which 187 (71.9%) articles from 119 unique news outlets were included. The 187 articles over the 6-month timeframe pertained to 12 different treatment options. The 187 included articles collectively contained a total of 709 exaggerated terms with a mean of 3.79 (± 1.70) per article. The most common term used was “life-saving” (254/709, 35.8%). The most common drugs associated with exaggerated language were lumacaftor/ivacaftor (Orkambi[®]; 98/187, 52.4%) with 250 terms used in 98 articles, and elexacaftor/tezacaftor/ivacaftor (Trikafta[™]; 60/187, 32.1%) with 172 terms used in 60 articles. FDA approval had been granted for half (50%, 6/12) of the included treatments. In most cases, authors were journalists (173/187, 92.5%). For 6 of the 12 treatments (50%), exaggerated language was used in the absence of clinical data in all included articles. Of the 173 articles written by journalists, only 24 (13.9%) contained clinical data. The use of celebrities was not frequent (16/187, 8.55%). Of the 119 news outlets, only 1 was HONcode certified (1/119, 0.85%) (Table 1).

DISCUSSION

Our study demonstrates that use of exaggerated language is common in news articles covering CF therapies. Four treatments (Trikafta[™], Kalydeco[®], Symdeko[®], Orkambi[®]) accounted for 89.7% (636/709) of the use of these exaggerated words, with the most common term being “life-saving.” The mean yearly cost of these four drugs is \$296,500 per year. Thus, this expense may limit the “life-saving” potential for patients who cannot afford them. The Cystic Fibrosis Foundation reports that nearly half of CF patients pay more than \$5000 per year, even after the help of charities and payment from insurance companies.⁵ Journalists and physicians should be aware of the effect of exaggerated language on CF patients and families. The HONcode certification is an effective guide when seeking accurate medical information. In one study, only 0.6% of health websites without HONcode certifications met criteria for HONcode ethical standards compared with 89% of

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Table 1 Use of Exaggerated Language in News Articles Covering CF Therapies

Drug/treatment	No. (%) of news articles with superlative(s) used (<i>n</i> = 187)	Superlative(s)	Mean superlatives per article	FDA approved?	No. (%) of news articles that provided clinical data	No. (%) of news articles with celebrity or iconic figure	Annual estimated cost (\$)*
CFTR correctors (tezacaftor, lumacaftor, elexacaftor)/ CFTR potentiators (ivacaftor) Lumacaftor/ivacaftor (Orkambi®)	98 (52.4)	Life-changing (62), life-saving (118), groundbreaking (8), revolutionary (13), breakthrough (17), transformative (20), miracle (4), game changer (8) Life-changing (37), life-saving (55), groundbreaking (3), revolutionary (5), breakthrough (13), transformative (9), miracle (3), game changer (1) Life-changing (11), life-saving (18), groundbreaking (13), revolutionary (1), breakthrough (61), transformative (19), game changer (15), miracle (23), cure (10), home-run (1)	2.55	Yes	4 (4.08)	6 (6.12)	272,000
Tezacaftor/ivacaftor (Symdeko®)	45 (24.1)	Life-changing (13), life-saving (55), groundbreaking (3), revolutionary (5), breakthrough (13), transformative (9), miracle (3), game changer (1)	2.8	Yes	4 (8.89)	2 (4.44)	292,000
Elexacaftor/tezacaftor/ ivacaftor (Trikafta™)	60 (32.1)	Life-changing (11), life-saving (18), groundbreaking (13), revolutionary (1), breakthrough (61), transformative (19), game changer (15), miracle (23), cure (10), home-run (1)	2.86	Yes	20 (33.33)	4 (6.67)	311,000
(CFTR) potentiators (ivacaftor) Ivacaftor (Kalydeco®)	29 (15.5)	Life-changing (17), life-saving (51), groundbreaking (6), revolutionary (1), breakthrough (8), transformative (4), miracle (1) Breakthrough (2) Life-changing (1), life-saving (1), game changer (3), cure (15), breakthrough (7), revolutionary (4), transformative (2), miracle (1) Game changer (3), miracle (6), transformative (3) Life-changing (1), life-saving (7) Life-saving (4), groundbreaking (1), breakthrough (1), cure (1) Breakthrough (8)	3	Yes	3 (10.3)	2 (6.89)	311,000
Antibiotic therapy Gene therapy/CRISPR/CAS9	1 (0.53) 13 (6.9)	Life-changing (1), life-saving (1), game changer (3), cure (15), breakthrough (7), revolutionary (4), transformative (2), miracle (1) Game changer (3), miracle (6), transformative (3) Life-changing (1), life-saving (7) Life-saving (4), groundbreaking (1), breakthrough (1), cure (1) Breakthrough (8)	2 2.6	No No	0 (0) 2 (15.4)	0 (0) 0 (0)	- -
ECMO (extracorporeal membrane oxygenation) Lung transplant Phage therapy	3 (1.6) 5 (2.6) 2 (1.06)	Life-changing (1), life-saving (7) Life-saving (4), groundbreaking (1), breakthrough (1), cure (1) Breakthrough (8)	4	Yes	3 (100)	0 (0)	-
Natural remedies (Manuka honey, snail slime antibiotic) AfloVest Virtual reality (VR therapy)	4 (2.13) 1 (0.53) 1 (0.53)	Life-changing (1) Game changer (1)	1.6 3.5	Yes No No	0 (0) 0 (0) 0 (0)	1 (20) 0 (0) 0 (0)	- - -
		Life-changing (1) Game changer (1)	2	No	0 (0)	0 (0)	-
		Life-changing (1) Game changer (1)	1 1	No No	0 (0) 0 (0)	1 (100) 0 (0)	- -

*Prices calculated from [Reuters.com](https://www.reuters.com)

HONcode certified websites.⁶ With only 1 news website registered through HONcode and only 14.4% (27/187) of included articles providing clinical evidence, the likelihood of CF patients encountering biased medical information is high. We recommend readers searching for health-related information across the medical spectrum use only HONcode certified websites.

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Compliance with Ethical Standards:

Conflict of Interest: The authors declare that they do not have a conflict of interest.

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