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Brief Communications

Professional Medical Writer Assistance in Oncology Clinical Trials

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Disclosures of potential conflicts of interest may be found at the end of this article.

Abstract

Background. The use of professional medical writers (PMWs) has been historically low, but contemporary data regarding PMW usage are scarce. In this study, we sought to quantify PMW use in oncologic phase III randomized controlled trials (RCTs).

Methods. We performed a database query through ClinicalTrials.gov to identify cancer-specific phase III RCTs; we then identified whether a PMW was involved in writing the associated trial manuscript reporting primary endpoint results.

Results. Two-hundred sixty trials of 600 (43.3%) used a PMW. Industry-funded trials used PMWs more often than nonindustry trials (54.9% vs. 3.0%, $p < .001$). Increased PMW usage was further noted among trials meeting their primary endpoint (53.4% vs. 32.9%, $p < .001$) and trials that led to subsequent Food and Drug Administration approval (63.1% vs. 36.3%, $p < .001$). By treatment interventions, PMW use was highest among systemic therapy trials (50.2%). Lastly, the use of PMWs increased significantly over time (odds ratio: 1.11/year, $p = .001$).

Conclusion. PMW use rates are high among industry-funded trials. We urge continued and increased transparency in reporting the funding and use of PMWs. ***The Oncologist*** 2020;25:e1812–e1815

Introduction

Academic publishing remains the cornerstone of cancer research and scientific communication of clinical trials. Over the years, there has been increasing interest in the use of professional medical writers (PMWs) to help investigators improve quality of writing and/or reduce the time to publication [1]. Use rates of such PMW services have historically been low, but contemporary data regarding PMW usage remain scarce [2]. With an increasing role of industry sponsorship in cancer clinical trials [3], we sought to characterize the rate of PMW use among reports of phase III cancer clinical trial results, focusing on factors associated with PMW usage.

Methods

Study Design and Data Collection

We performed a database query through the ClinicalTrials.gov registry to search for oncologic phase III randomized controlled trials (RCTs) conducted between 2003 and 2018. This search yielded a total of 1,239 trials, of which we selected trials that were cancer-specific, multiarm, interventional, randomized, phase III studies with published primary endpoint results (Fig. 1) [4]. Trial factors were extracted from ClinicalTrials.gov, the protocol, and/or the manuscript. For all 600 included trials, we searched the associated manuscripts, including the methodology and the acknowledgments sections, for disclosures regarding use of professional assistance in writing the manuscript.

Pearson's Chi-squared tests were used to assess the association between individual trial factors and the use of PMWs. Those variables with Pearson's Chi-squared $p < .05$ on univariate analysis were subsequently included in multivariable binary logistic regression modeling, which was used to identify those variables independently associated with PMW use. Statistical significance was set a priori at $\alpha = .05$. All analyses were performed using IBM SPSS version 26 (IBM, Armonk, NY) [5].

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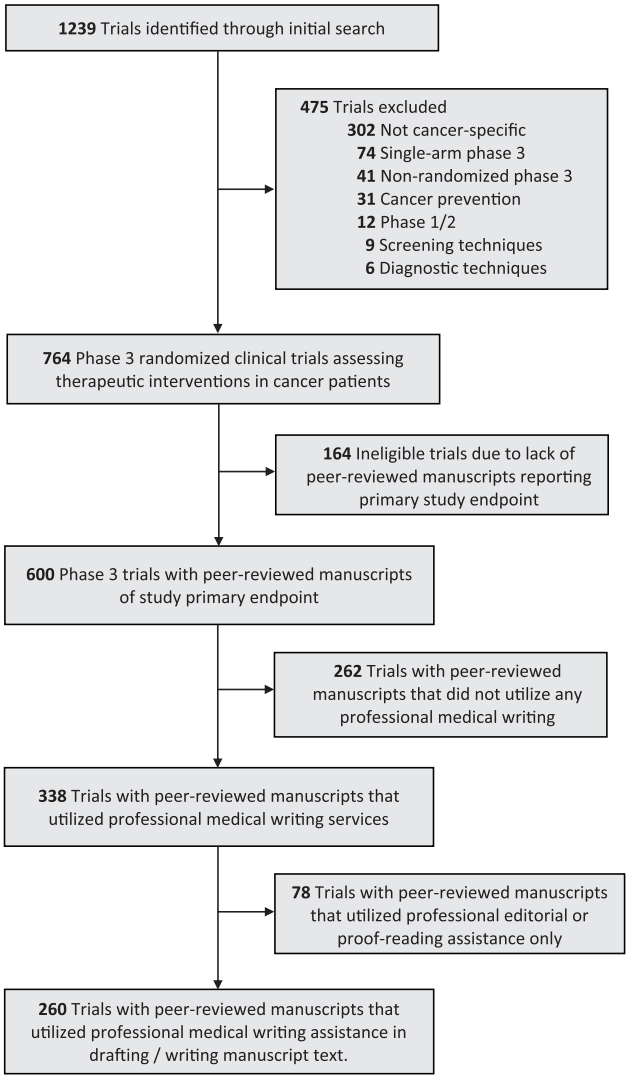

Figure 1. Flowchart of clinical trial screening, eligibility, and inclusion.

Results

In total, 600 trials met the inclusion criteria (Fig. 1), of which 260 (43.3%) used a PMW. Table 1 highlights trial factors associated with PMW use. Industry-funded trials used PMWs more often than nonindustry trials (54.9% vs. 3.0%, $p < .001$). Notably, financial support to PMWs was nearly exclusively provided by biopharmaceutical industry sponsors (247/260, 95.0%). On the other hand, cooperative group sponsorship was associated with lower PMW use (6.4% vs. 60.3%, $p < .001$). When analyzing intervention modality, trials of systemic therapy had higher PMW usage compared with trials of radiation therapy, surgery, or supportive care (50.2% vs. 6.7% vs. 0.0% vs. 22.3%, respectively, $p < .001$). Furthermore, trials with a first author affiliated with an institution from a non-English-speaking country relied more on PMW use when compared with trials with English-speaking country first authors (58.8% vs. 34.3%, respectively, $p < .001$). Increased PMW usage was also identified among trials that successfully met their primary endpoint (53.4% vs. 32.9%, $p < .001$). Lastly, the use of PMWs increased significantly over time (odds ratio [OR]: 1.11/year, $p = .001$). On multivariable binary logistic regression, Food and Drug Administration approval, trial disease site, and first author's institutional affiliation by nationality were not independently associated with PMW use. On the other hand, industry funding (OR: 13.8, $p = .001$), cooperative group sponsorship (OR: 0.1, $p < .001$), and intervention modality ($p = .01$) were all independently associated with the use of PMWs.

Discussion

The use of PMW assistance in communicating clinical trial results has been historically low, with scant information on PMW use in oncology trials. Such information remains imperative for full and transparent scientific communication, particularly given the increasing attention to the role of conflicts of interest in clinical oncology.

The observed rate of PMW usage among phase III oncology trials (43.3%) is strikingly higher than prior data from a 2006 report, in which writing assistance was noted in only 6% of publications. In addition, we show that PMW usage among industry-sponsored trials was markedly higher than the previous rate reported among industry-sponsored studies (54.9% vs. 10%) [2]. These comparator data from 2006 examined articles published in top journals from various discplines in medicine [2], whereas our study examined cancer-specific phase III trials irrespective of publication journal. It is possible that the higher PMW rates noted here are due to increased rates of writing assistance disclosure since 2006, as advocated for by professional writing societies. Yet, it is noteworthy that disclosure is still not universally mandated, and our findings may still underestimate the true extent of PMW usage [6]. Alternatively, higher use of PMWs in the present study may reflect a greater proportion of industry-sponsored oncology trials in general [7]. PMWs may also be increasingly used in order to expedite data reporting and publication; the observation of increased PMW usage among positive trials and trials that led to subsequent regulatory approval may support this hypothesis.

Prior data have demonstrated that PMW usage is associated with a higher rate of adherence to the Consolidated Standards of Reporting Trials criteria for reporting [2]. Although manuscript quality and readability might therefore be enhanced because of PMWs, the issue of potential conflicts of interest, while understudied, remains of potential concern [8].

Our study has several limitations. First, our search was limited to manuscript-reported disclosures of PMW support in manuscript drafting, potentially underestimating the true rate of PMW use. Ghostwriting of manuscripts would not be captured with our methodology [9]. Second, the differential roles of PMWs across manuscripts was not assessed; PMWs may provide proofreading and editorial assistance. Because those roles were excluded from our study (highlighted in Fig. 1), the true rate of PMW assistance might be higher. Although these levels of PMW involvement are not typically disclosed, it is conceivable that the extent of PMW input may differ based on factors such as industry sponsorship, trial success, and subsequent request for regulatory approval.

Table 1. Trial factors associated with the use of professional medical writers

Trial factors	Medical writer use *n* (%)	Chi-square *p* value	Multivariate binary logistic regression	
			Odds ratio	*p* value
Industry funding of trial[a]		<.001		
Yes	256/466 (54.9)		13.8 (3.1–61.2)	.001
No	4/134 (3.0)		—	
Cooperative group trial[a]		<.001		
Yes	12/189 (6.3)		0.1 (0.03–0.14)	<.001
No	248/411 (60.3)		—	
Disease site[b]		.01		.43
Breast	40/105 (38.1)			
Gastrointestinal	46/76 (60.5)			
Genitourinary	32/70 (45.7)			
Head and neck	11/23 (47.8)			
Hematologic	46/118 (39.0)			
Lungs	51/88 (58.0)			
Modality[c]		<.001		.01
Systemic therapy[d]	234/466 (50.2)			
Radiotherapy	1/15 (6.7)			
Surgery	0/7 (0.0)			
Supportive care[e]	25/112 (22.3)			
Trial success (PEP met)		<.001		
Yes	163/305 (53.4)		1.6 (0.9–2.7)	.09
No	97/295 (32.9)		—	
Subsequent FDA approval[f]		<.001		
Yes	99/157 (63.1)		1.1 (0.6–2.0)	.71
No	161/443 (36.3)		—	
First author from English-speaking country[g]		<.001		
Yes	130/379 (34.3)		0.7 (0.5–1.1)	.13
No	130/221 (58.8)		—	

[a]Industry funding and cooperative group sponsorship were considered independent variables because some trials were both industry funded and performed through a cooperative group.
[b]Analysis by disease site was limited to those studies with a defined single disease site.
[c]Modality addressed the primary intervention as part of the randomization.
[d]Systemic therapy trials, including chemotherapy, targeted systemic agents, immunotherapy, and others, accounted for most trials by modality; they used systemic therapies to improve disease-related outcomes (e.g., overall survival, disease-free survival).
[e]Supportive care trials were those where the intervention aimed to reduce disease- or treatment-related toxic effects as the primary endpoint.
[f]The trial led to subsequent FDA approval of the drug being tested.
[g]Based on affiliation with an institution located in English-speaking countries: U.S., U.K., Canada, and Australia.
Abbreviations: —, no data; FDA, Food and Drug Administration; PEP, primary endpoint.

Conclusion

This study represents the first large-scale modern analysis of PMW use and funding among cancer clinical trials, particularly relevant with the growing role of industry sponsorship among clinical oncology studies. Although prior data suggest that the use of PMWs may improve quality [1], others have raised concerns that PMWs may have a disproportionate effect in shaping the conclusions of industry-sponsored trials [8], and therefore sway acceptance of data. We demonstrate high rates of PMW use among industry-sponsored trials; this highlights the need for continued and increased transparency in reporting the funding, use, and role of professional writing assistance [2, 6].

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Disclosures

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(C/A) Consulting/advisory relationship; (RF) Research funding; (E) Employment; (ET) Expert testimony; (H) Honoraria received; (OI) Ownership interests; (IP) Intellectual property rights/inventor/patent holder; (SAB) Scientific advisory board

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