COMMENTARY

Information from Social Media Platforms Aid in the Early Detection of Adverse Medication Events

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DESCRIPTION

Regulators are becoming more and more interested in examining social media posts and data from support group websites as potential new sources for studying drug safety, patient-reported outcomes, and user experiences. For instance, the Food and Drug Administration (FDA) of the United States has acknowledged that Internet-based data is relevant to public health and has provided funding for the creation of tools to analyze social media data for safety signals. Similar to this, a $6 million effort to find novel drug-related Adverse Events (AEs) by analyzing web and social media content which was recently sponsored by the Innovative Medicines Initiative, a public-private cooperation between the European Union and the pharmaceutical sector.

Understanding social media's advantages and disadvantages in comparison to traditional data sources, including the FDA Adverse Event Reporting System, is necessary for utilising social media data for pharmacovigilance. However, the work that currently comparing social media and traditional pharmacovigilance data sources does not further explore the intertemporal link of the reporting pattern between these sources and is restricted to a comparison of the reporting features. This study aims to offer insight on the possible use of social media data in pharmacovigilance, particularly their potential to hasten the discovery of adverse drug reactions. For two drugs, atorvastatin and sibutramine, we compared the patient characteristics and AE reporting patterns found in a social media data source with those found in FDA FAERS reports.

The results of this study demonstrate some of the benefits of using social media data sources rather than traditional pharmacovigilance techniques for identifying early AE report patterns. For only one of the two drugs we looked at, social media AE reports helped predict the occurrence of FAERS reports some months later. These conflicting findings might be explained by the younger age of sibutramine reporters. The influencers of social media reports over time may tend to more closely resemble those for traditional pharmacovigilance sources for drugs used more frequently by younger patients, to the extent that total social media utilisation are higher for younger patients. Additionally, our findings indicate that social media sources differ from traditional pharmacovigilance data sources like FAERS in terms of the types of information they contain and the demographics they are used by, despite certain commonalities between the two data sources (such as the top AEs). In comparison to FAERS, social media users who reported drug-related adverse events tended to be younger, and the clinically important Adverse Events (AEs) received less attention from these users. These results were consistent for two drugs with quite different safety characteristics. Additionally, our findings agree with the findings of the literature.

For our study, the context included in social media reviews was crucial. For instance, social media reviews might be both good and negative, and some postings in the raw data seemed to be based more on hearsay than the social media reviewer's own experiences. Researchers and regulators need to be aware of possible discrepancies between the data found in social media and traditional pharmacovigilance data sources. One policy implication of our findings is that AE reports from social media sources should not be combined with those from traditional pharmacovigilance sources. The massive influx of non-life-threatening Adverse Events (AEs) that appear to be common in social media sources could mask clinically significant signals that the existing FAERS system is. To maintain the accuracy of the data, it is crucial that pharmacovigilance rules include precise instructions regarding what qualifies as a reportable occurrence. Additionally, authorities have to keep accurate records of the sources of AE reports and make them accessible to researchers.

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