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Study of Highly Cited Papers on Antineoplastic Drugs

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Abstract. The objective of this paper is to study the highly cited papers (papers cited more than 30 times) on antineoplastic drugs, and to provide reference for quality improvement and influence increase of journals. Bibliometric analysis of cited papers on antineoplastic drugs published between 1999 and 2018 is conducted by using the Chinese Citation Database. The results show that 4683 papers are cited 34463 times, with an average of 7.36 times per paper. The papers published in 2005, 2010 and 2009 are the most highly cited papers with 2507 (7.27%), 2424 (7.03%) and 2419 (7.02%) times, respectively. The highest number of citation is owned by the paper authored by Ding Jian which is cited 349 (1.01%) times. The most cited journal is *Chinese Journal of New Drugs*, which is cited 1287 (3.73%) times. The author's affiliation with the highest citation is China Pharmaceutical University with a citation of 1252 (3.63%) times. The research fund with the highest citation which funded those studies is National Natural Science Foundation of China with a citation of 4278 (12.41%) times. The most highly cited subject is pharmacy with a citation of 12036 (34.92%) times. The main citation period of the top 20 papers is from the 2nd year to the 9th year after publication, accounting for 67.70%. The peak years of citation are the 4th year and the 5th year after publication. Among the above-mentioned top 20 papers, the first authors of 9 papers are from universities, accounting for 45.00%. There are 210 papers with a citation over 30 times for each paper, including 112 (53.33%) research papers and 98 (46.67%) review papers. The study also shows that the subjects of research papers with high citation include pharmacological experimental research, the evaluation of clinical effects, and the impact and protection of antineoplastic drugs, the number of cited papers of which are 50, 18 and 13, accounting for 23.81%, 8.57% and 6.19%, respectively. The papers with high citation frequency are those about antineoplastic drugs in pharmacological effects and mechanisms, clinical evaluation, occupational protection, adverse reactions, as well as various reviews. Editors of journal should focus to organize and absorb above ideas in selecting manuscripts to fully exploit the excellent manuscript sources, and to improve the quality and influence of journals.

1. Introduction

The value of research papers lies in the inheritance and innovation of scientific research. The higher the citation frequency of the paper, the greater value of the scientific research results is. Thus, the



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method of evaluating the quality of papers by citation frequency has received extensive attention. Frequently cited papers refer to the papers with relatively high citation frequency and long citation period. Frequently cited papers are valuable and important in scientific research and represent a high academic level [1]. For authors, frequently cited papers are of great academic importance. For journals, frequently cited papers indicate their high quality and level, which is also the main contribution to journal citation indicators [2]. The more the papers are cited, the greater contribution to the total citation frequency of the journal and vice versa. Study on frequently cited papers has a positive effect on appointment of manuscript, quality improvement, and enhancement of the journal's academic influence. Thus frequently cited papers have received attention from researchers [3-10].

Tumor is a disease with a high mortality rate that seriously threatens human health. Drug therapy has certain curative effect on tumors. There is analysis on citations of doctoral dissertations on oncology [11]. The pharmacological effects [12-13], clinical evaluation [14-15] and review of antineoplastic drugs [16-18] have received extensive attention. This study conducts analysis of highly cited papers on antineoplastic drugs published between 1999 and 2018 by using bibliometric method.

2. Data Source and Methodology

The data is retrieved from Chinese Citation Database in China National Knowledge Infrastructure (CNKI) [19]. Using antineoplastic drugs as the searching key word, the cited papers in the field of antineoplastic drug research between 1999 and 2018 are collected on Jan. 11th 2019. By using the bibliometric method, we analyze the publication period of all the collected papers, the top 10 cited authors, the top 10 cited affiliations, the top 10 cited journals, the top 10 cited funds and the top 10 cited subjects. We also analyze the cited period of the top 20 papers and the research areas of the papers cited more than 30 times. Through the descriptive analysis of the cited papers on antineoplastic drugs, the basic characteristics are obtained, which indicates the direction for the journal editors' drafts organization and reservation.

3. Result and Analysis

3.1. Analysis of Cited Times Versus Date of Publication

Table 1. Publication period of cited papers on antineoplastic drugs

Number	Publication period	Number of papers	Percentage of number of papers	Citation frequency	Percentage of Citation frequency
1	2005	238	5.08%	2507	7.27%
2	2010	344	7.35%	2424	7.03%
3	2009	315	6.73%	2419	7.02%
4	2008	270	5.77%	2305	6.69%
5	2007	267	5.70%	2144	6.22%
6	2006	241	5.15%	2103	6.10%
7	2004	183	3.91%	2070	6.01%
8	2011	307	6.56%	2026	5.88%
9	2013	356	7.60%	2026	5.88%
10	2002	142	3.03%	1936	5.62%
11	2000	115	2.46%	1908	5.54%
12	2012	357	7.62%	1888	5.48%
13	2001	119	2.54%	1765	5.12%
14	2003	152	3.25%	1624	4.71%
15	2014	356	7.60%	1598	4.64%
16	2015	346	7.39%	1340	3.89%
17	1999	98	2.09%	996	2.89%
18	2016	268	5.72%	937	2.72%
19	2017	188	4.01%	414	1.20%
20	2018	21	0.45%	33	0.10%
Total		4683	100%	34463	100%

A total of 4683 cited papers on antineoplastic drugs are retrieved, which are cited 34463 times, with an average of 7.36 times per paper (see Table 1). The citation frequency is the highest for papers published in 2005, 2010 and 2009, which are 2507 (7.27%), 2424 (7.03%) and 2419 (7.02%), respectively. The number of cited papers for the publication year of 2012, 2013 and 2014 is relatively high, which is 357 (7.62%), 356 (7.60%) and 356 (7.60%), respectively.

3.2. Analysis of the Authors of the Cited Papers

The authors of the top 10 cited papers on antineoplastic drugs are listed in Table 2. The top 3 authors are Ding Jian from the Shanghai Institute of Materia Medica, Chinese Academy of Sciences, You Qidong from China Pharmaceutical University, and Zhou Youjun from the Second Military Medical University. They are cited 349, 282 and 217 times, accounting for 1.01%, 0.82% and 0.63%, respectively.

3.3. Analysis of Journals of the Cited Papers

The top 10 journals of cited papers on antineoplastic drugs are shown in Table 3. *Chinese New Drugs Journal*, *Chinese Journal of Cancer Prevention and Treatment*, and *Acta Pharmaceutica Sinica* are cited for 1287, 1284, 850 times, accounting for 3.73%, 3.73% and 2.47%, respectively.

Table 2. Authors of the top 10 cited antineoplastic drug papers

Number	Cited author	Number of papers	Percentage of number of papers	Citation frequency	Percentage of citation frequency
1	Ding Jian	12	0.26%	349	1.01%
2	You Qidong	26	0.56%	282	0.82%
3	Zhou Youjun	13	0.28%	217	0.63%
4	Chen Kaoshan	2	0.04%	197	0.57%
5	Zhu Ju	15	0.32%	192	0.56%
6	Lin Jun	1	0.02%	191	0.55%
7	Cui Jingrong	6	0.13%	185	0.54%
8	Zhen Yongsu	11	0.23%	177	0.51%
9	Zhang Wannian	15	0.32%	174	0.50%
10	Li Wuping	6	0.13%	165	0.48%
Total		107	2.29%	2129	6.17%

Table 3. Top 10 journals of cited papers on antineoplastic drugs

Number	Cited journals	Number of papers	Percentage of number of papers	Citation frequency	Percentage of citation frequency
1	<i>Chinese New Drugs Journal</i>	117	2.50%	1287	3.73%
2	<i>Chinese Journal of Cancer Prevention and Treatment</i>	171	3.65%	1284	3.73%
3	<i>Acta Pharmaceutica Sinica</i>	59	1.26%	850	2.47%
4	<i>Chinese Journal of New Drugs and Clinical Remedies</i>	75	1.60%	714	2.07%
5	<i>China Pharmacy</i>	85	1.82%	704	2.04%
6	<i>Journal of International Pharmaceutical Research</i>	61	1.30%	656	1.90%
7	<i>Tumor</i>	47	1.00%	613	1.78%
8	<i>Progress in Pharmaceutical Sciences</i>	70	1.49%	610	1.77%
9	<i>Chinese Pharmaceutical Journal</i>	53	1.13%	517	1.50%
10	<i>Journal of Practical Oncology</i>	71	1.52%	503	1.46%
Total		809	17.27%	7738	22.45%

3.4. Analysis of Affiliation of the Cited Papers

The top 10 affiliations of the cited papers on antineoplastic drugs are shown in Table 4. It shows the China Pharmaceutical University, the Second Military Medical University and Shanghai Institute of Materia Medica, Chinese Academy of Sciences are cited with frequency of 1252 (3.63%), 785 (2.28%) and 748 (2.17%) times, respectively.

Table 4. Top 10 affiliations of the cited papers on antineoplastic drugs

Number	Cited affiliations	Number of papers	Percentage of number of papers	Citation frequency	Percentage of citation frequency
1	China Pharmaceutical University	154	3.29%	1252	3.63%
2	The Second Military Medical University	67	1.43%	785	2.28%
3	Shanghai Institute of Materia Medica, Chinese Academy of Sciences	42	0.90%	748	2.17%
4	Shandong University	61	1.30%	684	1.98%
5	Peking University Tumor Hospital	50	1.07%	629	1.83%
6	of the Chinese Academy of Medical Science	48	1.02%	537	1.56%
7	Peking Union Medical College Hospital, Chinese Academy of Medical Sciences	24	0.51%	534	1.55%
8	Shenyang Pharmaceutical University	61	1.30%	527	1.53%
9	Zhejiang University	62	1.32%	523	1.52%
10	Nanjing University	24	0.51%	336	0.97%
Total		593	12.65%	6555	19.02%

3.5. Analysis of the Research Fund of the Cited Papers

The top 10 funded projects with high cited papers on antineoplastic drugs are shown in Table 5. It can be seen that the papers funded by National Natural Science Foundation of China, National High-Tech Research and Development Plan (863 Plan) and National Key Basic Research Development Plan (973 Plan) are cited with highest frequency, which are 4278 (12.41%), 959 (2.78%) and 913 (2.65%) times, respectively.

Table 5. Top 10 fund projects of cited papers on antineoplastic drugs

Number	Cited funds	Number of papers	Percentage of number of papers	Citation frequency	Percentage of citation frequency
1	National Natural Science Foundation of China	536	11.45%	4278	12.41%
2	National High-tech Research and Development Plan (863 Plan)	68	1.45%	959	2.78%
3	National Key Basic Research Development Plan (973 Plan)	63	1.35%	913	2.65%
4	Guangdong Natural Science Foundation	25	0.53%	249	0.72%
5	Jiangsu Natural Science Foundation	23	0.49%	247	0.72%
6	Shanghai Science and Technology Development Fund	17	0.36%	196	0.57%
7	Anhui Natural Science Foundation	13	0.28%	192	0.56%
8	Shandong Natural Science Foundation	23	0.49%	181	0.53%
9	Zhejiang Natural Science Foundation	24	0.51%	164	0.48%
10	Special Fund for the Doctoral Program of Higher Education	24	0.51%	160	0.46%
Total		816	17.42%	7539	21.88%

3.6. Analysis of the Subjects of the Cited Papers

All the cited papers are classified into different subjects. The interdisciplinary subjects are accounted into one of the closest subject of the interdisciplinary subjects. The results show that 4683 cited papers are from 62 subjects. The 10 subjects with the highest citation frequency are shown in Table 6. The papers on pharmacy, oncology and Science of Chinese Materia Medica have high citation frequency, which are 12036, 10078 and 2945 times, accounting for 34.92%, 29.24% and 8.55%, respectively.

Table 6. Top 10 cited subjects of cited papers on antineoplastic drugs

Number	Cited subject	Number of papers	Percentage of number of papers	Citation frequency	Percentage of citation frequency
1	Pharmacy	1669	35.64%	12036	34.92%
2	Oncology	1251	26.71%	10078	29.24%
3	Science of Chinese Materia Medica	260	5.55%	2945	8.55%
4	Organic Chemical Industry	307	6.56%	1500	4.35%
5	Clinical Medicine	189	4.04%	1155	3.35%
6	Traditional Chinese Medicine	52	1.11%	871	2.53%
7	Preventive Medicine and Hygienics	74	1.58%	616	1.79%
8	Endocrine Glands and Systemic Diseases	57	1.22%	480	1.39%
9	Cardiovascular Diseases	63	1.34%	435	1.26%
10	Obstetrics and Gynecology	59	1.26%	416	1.21%
Total		3981	85.01%	30532	88.59%

3.7. Analysis of the Top 20 Cited Papers

3.7.1. Analysis of cited period

The papers with top 20 citation frequency are selected for further analysis. Let N_0 denote the number of citations in the year of publication, N_1 the number of citations in the first year after publication, N_2 the number of citations in the second year after publication and so on. The analysis of the data collected about citation frequency of the papers in the different citation years shows that the values of N_2 - N_9 are the highest and they are between 140 to 192, and 1344 in total, accounting for 67.70%. This indicates that the highly cited papers on antineoplastic drugs are the most frequently cited in the 2nd to the 9th years after publication. N_4 and N_5 are larger than others, which are 186 and 192, accounting for 9.37% and 9.67%, respectively. N_{12} and N_{13} are significantly small, which are 77 and 87, accounting for 3.88% and 4.38%, respectively (see Table 7).

The citation frequency, percentage and average citation times of the 20 papers in the fifth year after publication are the highest. The top 20 papers are cited 99.25 times on average. Among them, 11 (55.00%) are experimental research papers, and the other 9 (45.00%) are review papers.

Table 7. The distribution of the title, publication year (issue), citation frequency and citation period of the top 20 cited papers

No.	Title	Publication period (issue)	Citation frequency	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	N ₁₃	N ₁₄	N ₁₅	N ₁₆	N ₁₇	N ₁₈	N ₁₉
1	New research approaches in anti-tumor drug	2000 (03)	218	0	5	7	4	10	19	27	22	25	16	16	10	14	10	10	5	9	7	2	✓
2	Advance in studies on anti-tumor activity of polysaccharides in latest five years	2013 (08)	191	5	24	32	45	58	27	✓													
3	Study on anti-tumor activity of ginsenoside Rg ₁ and Rh ₁	2003 (01)	131	0	3	4	13	5	5	3	12	12	11	10	14	8	17	8	6	✓			
4	Anti-tumor effect of paeonol <i>in vitro</i> and <i>in vivo</i>	2002 (03)	116	0	3	6	8	9	15	7	10	9	7	8	12	6	8	6	2	0	✓		
5	Comparison of MTT with SRB assays <i>in vitro</i> anticancer drug screening	1999 (03)	114	0	0	1	0	0	2	8	8	10	9	6	10	8	10	4	11	10	3	7	7
6	Progression of lobaplatin as the third generation platinum drug	2009 (12)	110	0	0	7	17	20	19	13	15	10	9	✓									
7	Advances in anti-tumor mechanisms of elemene	2000 (05)	102	0	3	5	8	4	3	13	10	11	6	12	6	6	4	2	1	1	4	3	✓
8	Antagonistic effect of <i>Angelica Sinensis</i> (Oliv.) Diels Lactone (ASDL) on the immunosuppressive response induced by Cyclosporin A, Hydrocortisone and antitumor agents	2000 (01)	97	1	3	6	2	4	7	11	7	7	8	8	6	3	5	4	3	4	6	2	✓
9	Signal transduction by protein tyrosine kinases and antitumor agents	2008 (04)	97	1	4	13	9	7	13	10	12	15	10	3	✓								
10	Advances in research on anti-malignant tumors of traditional Chinese medicine	2006 (04)	95	2	6	11	9	14	9	12	12	7	7	3	2	1	✓						
11	Progress research of antitumor agents vinblastine analogues	2005 (07)	92	0	4	5	7	9	11	4	11	10	12	5	6	7	1	✓					
12	Inhibition of telomerase activity and induced apoptosis of liver cancer cell SMMC-7721 by drug serum of Jianpi Liqi herbs	2000 (08)	89	0	1	6	6	6	6	7	7	6	11	13	7	5	4	3	0	1	0	0	✓

Note: N₀ indicates the citation frequency in the year of publication, N₁...N₁₉ indicates the citation frequency in the first year to the 19th year after publication, respectively; the last cited year is 2018, ✓ indicates the end.

Table 7 (Continued). The distribution of the title, publication year (issue), citation frequency and citation period of the top 20 cited papers

No.	Title	Publication period (issue)	Citation frequency	N ₀	N ₁	N ₂	N ₃	N ₄	N ₅	N ₆	N ₇	N ₈	N ₉	N ₁₀	N ₁₁	N ₁₂	N ₁₃	N ₁₄	N ₁₅	N ₁₆	N ₁₇	N ₁₈	N ₁₉
13	Effects of tanshinone IIA and its nanoparticle on apoptosis and expression of p38 MAPK and TGFβ ₁ signaling	2008 (01)	75	3	17	10	10	6	11	6	8	2	2	0✓									
14	proteins of hepatoma cells in mice Correlation between experimental results of MTT colorimetric assay and SRB assay in anti-tumor drug screening in vitro	2009 (04)	74	0	4	9	9	8	13	9	11	7	4✓										
15	Studies on the biotransformation of escin Ia by human intestinal bacteria and the anti-tumor activities of desacylesc in I	2004 (01)	66	3	0	2	6	6	6	2	6	9	3	4	4	6	6	3✓					
16	Studies on antineoplastic constituents from marine organisms in south China sea	2002 (03)	66	0	1	4	1	2	7	8	9	6	4	6	4	5	6	2	1	0✓			
17	Study on chemotherapy-induced disorders of glucose metabolism in patients with malignant ovarian tumor Extraction and isolation of ampelopsin from <i>Ampelopsis cantoniensis</i>	2002 (08)	64	0	0	1	1	2	5	9	5	10	5	6	7	5	4	2	2	0✓			
18	Planck and its inhibitory effect on B16 Melanoma	1999 (02)	64	0	2	3	1	6	2	3	6	3	7	1	6	1	8	1	3	6	4	1	0✓
19	The Development of ruthenium complexes as anticancer drugs activation and anticancer mechanism	2004 (06)	63	0	3	4	5	1	4	3	10	7	3	6	8	2	4	3✓					
20	Advances in studies on antineoplastic drugs originated from plant	2007 (02)	61	0	5	6	7	9	8	5	4	5	6	3	3✓								
	Total		1985	15	88	142	168	186	192	160	185	171	140	110	105	77	87	48	34	31	24	15	7
	Percentage/%		99.99	0.76	4.43	7.15	8.46	9.37	9.67	8.06	9.32	8.62	7.05	5.54	5.29	3.88	4.38	2.42	1.71	1.56	1.21	0.76	0.35
	The average frequency of cited paper		99.25	0.75	4.40	7.10	8.40	9.30	9.60	8.00	9.25	8.55	7.00	5.50	5.25	3.85	4.35	2.40	1.70	1.55	1.20	0.75	0.35

Note: N₀ indicates the citation frequency in the year of publication, N₁...N₁₉ indicates the citation frequency in the first year to the 19th year after publication, respectively; the last cited year is 2018, ✓ indicates the end.

3.7.2. Analysis of first author's affiliation

Among the 20 papers, 9 first authors are from colleges or universities, 4 from research institutes, 5 from hospitals affiliated to universities and research institutes, 1 from military hospitals and 1 from drug development companies (see Table 8).

Table 8. The first author, their affiliations and the source journals of the top 20 cited papers

Number	First author	Affiliations of first author	Source journals
1	Ding Jian	Shanghai Institute of Materia Medica, Chinese Academy of Sciences	Chinese Journal of New Drugs
2	Lin Jun	Department of Pharmacology, Wannan Medical College	China Journal of Chinese Materia Medica
3	Chen Shengwu	Jilin Institute of Natural Medicine, TianYao Science and Technology Co., Ltd	Journal of Jilin University (Medicine Edition)
4	Sun Guoping	Institute of Clinical Pharmacology, Anhui Medical University	Acta Universitatis Medicinalis Anhui
5	Tan Weidong	Chengdu Di Ao Pharmaceutical Company of Academia Sinica	Natural Product Research and Development
6	Yang Liuqing	Tumor Center of PLA, 81 Hospital of PLA	Chinese Clinical Oncology
7	Zhou Hongyu	Department of Neurosurgery, Renji Hospital Affiliated to Shanghai Second Medical University	Chinese Journal of Clinical Oncology
8	Feng Jingqi	Institute of Medical Biotechnology, Chinese Academy of Medical Sciences, Peking Union Medical College	Chinese Journal of Immunology
9	Mao Yongjun	Shanghai Institute of Materia Medica, Chinese Academy of Sciences	Acta Pharmaceutica Sinica
10	Yao Zhihua	Department of Oncology, the First Affiliated Hospital of Zhengzhou University	Journal of Modern Oncology
11	Ding Yafang	Department of Biosciences and Biotechnology, Dalian University of Technology	Chinese Journal of Pharmaceuticals
12	Meng Zhiqiang	Department of Hepatology, Cancer Hospital of Shanghai Medical University	World Chinese Journal of Digestology
13	Li Qi	Department of Tumor, Putuo Hospital Affiliated to Shanghai University of Traditional Chinese Medicine	Tumour
14	Huang Yinjiu	Department of Bioscience, Bengbu Medical College	Journal of Biology
15	Yang Xiuwei	State Key Laboratory of Natural & Biomimetic Drugs, Peking University School of Pharmaceutical Sciences	Journal of Peking University (Health Sciences)
16	Yi Yanghua	Research Center for Marine Drugs, College of Pharmacy, Second Military Medical	Academic Journal of Second Military Medical University
17	Zhang Junji	Department of Obstetrics and Gynecology, Peking Union Medical College Hospital, Peking Union Medical College, Chinese Academy of Medical Sciences	Chinese Journal of Obstetrics and Gynecology
18	Liu Deyu	Department of Chemistry, Sun Yat sen University of Medical Sciences	Academic Journal of Sun Yat-sen University of Medical Sciences
19	Liu Jie	The Key Laboratory of Gene Engineering of Education Ministry, School of Chemistry and Chemical Engineering, Zhongshan University	Progress in Chemistry
20	Xie Jun	Key Laboratory of Eco-environments in Three Gorges Reservoir Region, Ministry of Education, Key Laboratory of Plant Ecology and Resources in Three Gorges Reservoir Region, School of Life Sciences, Southwest University	Chinese Traditional and Herbal Drugs

3.8. Analysis of Research Areas and Academic Characteristics

3.8.1. Analysis of research areas

210 papers on antineoplastic drugs with over 30 citation times are analyzed. The results show that there are 112 research papers, accounting for 53.33%, and 98 review papers, accounting for 46.67%.

The research fields of the research papers include pharmacology, clinical evaluation, occupational protection, adverse reactions, extraction techniques, chemistry, pharmaceuticals, new drug introduction and market analysis. The results are shown in Table 9.

Table 9. Research areas of cited papers on antineoplastic drugs (cited frequency ≥ 30 times)

Classification of papers	Research direction	Number of papers	Proportion	Total papers	Proportion
Research papers				112	53.33%
	Pharmacology	50	23.81%		
	Clinical evaluation	18	8.57%		
	Occupational protection	13	6.19%		
	Adverse drug reaction	11	5.24%		
	Chemistry	5	2.38%		
	Extraction process	4	1.90%		
	Pharmaceutics	3	1.43%		
	Introduction of new drugs	3	1.43%		
	Market analysis	2	0.95%		
	Other	3	1.43%		
Review papers				98	46.67%
	A review of a certain class or an antineoplastic drug	39	18.57%		
	A review of the pharmacological effects and mechanisms of a certain class or a chemical component	22	10.48%		
	A review of the clinical application of a certain class of drugs	13	6.19%		
	A review of adverse reactions of a certain class of drugs	9	4.29%		
	Review of various aspects of antineoplastic drugs	8	3.81%		
	A review of the pharmacology and clinical application of a certain class or a certain drug	7	3.33%		
Total		210	100%	210	100%

3.8.2. Analysis of academic characteristics

3.8.2.1. Academic characteristics of research papers.

Among the 210 papers, there are 50 papers on pharmacological experimental research of antineoplastic drugs, accounting for 23.81%. They are mainly about the pharmacological action and mechanism of certain antineoplastic chemical components and extraction, which indicates that antineoplastic drug pharmacological mechanism is a hot research topic. For example, the paper "Study on anti-tumor activity of ginsenoside Rg₁ and Rh₁" is cited 131 times.

The number of papers on evaluation of clinical effects of antineoplastic drugs is 18, accounting for 8.57%. For example, the paper "Clinical results of three different intravesical instillation agents for the prevention of postoperative recurrence of bladder tumor" is cited 32 times.

The number of papers on impact and protection of antineoplastic drugs on the health of health care workers is 13, accounting for 6.19%. For example, the paper “Investigation of the health of the staff exposure to antineoplastics in hospital” is cited 50 times.

The number of papers on adverse reaction of antineoplastic drugs is 11, accounting for 5.24%. For example, the paper “Clinical analysis of 132 patients with drug-induced liver damage” is cited 34 times.

3.8.2.2. *The academic characteristics of the review papers.*

The citation frequency of various reviews on antineoplastic drugs are as follows:

Review on a certain class of drugs or a specific medicine. For example, the paper “Advance in studies on anti-tumor activity of polysaccharides in latest five years” is cited 191 times.

A review of the pharmacological effects and mechanisms of a class of or a certain chemical component. For example, the paper “Advances in anti-tumor mechanisms of elemene” is cited 102 times.

A review of the clinical application of a class of or a certain drug. For example, the paper “Pegaspargase: a review of clinical studies” is cited 48 times.

Review on adverse reactions of a class of drugs. For example, the paper “Cardiotoxicity of anthracyclines” is cited 48 times.

Review of various aspects of antineoplastic drugs. For example, the paper “New research approaches in anti-tumor drug” is cited 218 times.

A review of the pharmacology and clinical application of a class of or a certain drug. For example, the paper “Pharmacology and clinical use of capecitabine” is cited 60 times.

4. Discussion

Through the descriptive analysis of the cited papers on antineoplastic drugs, the basic characteristics are obtained, which indicates the direction for the journal editors' drafts organization and reservation.

The editors should focus on some important sources for manuscript reservation. It is found in this study that the most of the highly cited papers come from universities and their affiliated hospitals and research institutes. These institutions have strong scientific research capability which have produced a large number of papers and are the places where the scientific researchers perform research activities. Because of this, editors should communicate and cooperate with these researchers, understand their research trends, and reserve their manuscripts.

The editors should pay attention to the review papers. A review paper is a comprehensive and targeted document formed by analyzing, evaluating, and summarizing relevant literatures. It has been processed by the author and its contents are comprehensive with high value. Therefore, proper publication of some high-level review papers is conducive to improve the citation frequency and journal's influence.

The editors should initiate and augment the fast publication process. i.e., quick peer review. It is found that most of the highly cited papers are from fund-funded papers, and the most famous fund is the National Natural Science Foundation. Thus, the editor should have a fast process for fund papers, to give high priority to fund papers in reviewing, editing, recruitment, and publication to attract more funds to fund excellent papers and to enhance authors' attention to journals, and to establish a relatively stable author pool.

Journals should establish a core author group. It is suggested that the highly cited authors are selected to form the core authors group in the relevant fields of the journal. Through network communication, academic conferences and face-to-face communication in the laboratory, the editors can effectively connect with the core authors to get more papers of high quality.

Editors should plan for new columns on major issues. Analysis of highly cited papers on antineoplastic drugs shows that pharmacological effects, mechanisms, clinical evaluation and other related fields are major issues for consideration. Editors should start relevant columns to keep up with the frontiers of scientific research. If a series of research papers in the fields can be published, then a featured section of the publication can be formed.

5. Conclusion

The papers with high citation frequency are those about antineoplastic drugs in pharmacological effects and mechanisms, clinical evaluation, occupational protection, adverse reactions, as well as various reviews. Editors of journal should focus to organize and absorb above ideas in selecting manuscripts to fully exploit the excellent manuscript sources, and to improve the quality and influence of journals.

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