The research hotspots analysis of hypertension nursing by PubMed

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ABSTRACT

Objective: To understand the research hotspots of hypertension nursing by PubMed. Methods: With MS Excel, SPSS, Cytoscape software, we took MeSH (Medical Subject Headings) word frequency analysis, clustering analysis, co-word network graph of PubMed papers. Results: It shows that the current hypertension nursing research hotspots had focus on the aged, epidemiology, organization & administration, etc, it also suggests that According to age groups taking different nursing measures is the research hotspots now, and the elderly is very need to pay special attention. Conclusion: It is helpful and timesaving for researcher or doctor to understand the research hotspots in hypertension nursing.　　© 2013 Trade Science Inc. - INDIA

KEYWORDS

Hypertension;
Nursing;
Word frequency analysis;
Clustering analysis;
Co-word network graph;
The elderly.

INTRODUCTION

Hypertension is a major public health problem worldwide, there are approximately 1 billion individuals suffer from high blood pressure worldwide[1], at present the research of hypertension nursing is mainly related to the nursing intervention of medication timing observation, medication nursing, improving the medication compliance of patients with nursing intervention measures, it has a great significance to the treatment of hypertension. We hope that through this research the analysis of the MeSH can draw the outline of hypertension nursing research hotspot.

Therefore this research retrieved the hypertension nursing papers of PubMed (http://www.ncbi.nlm.nih.gov/pubmed), got 1311 papers, and analyzed MeSH of above papers using Co-word Analysis[8].

MATERIALS AND METHODS

First, we retrieved PubMed papers with publication dates between 1966 and 18 February 2013. Second, search terms was ("hypertension"[MeSH Terms] OR "hypertension"[All Fields]) and ("nurses"[MeSH Terms] OR "nurses"[All Fields]). Third, using Microsoft Excel we recorded All MeSH terms of above papers, and sort and filter the terms, and looked for the high frequency terms (occurrences), and we also counted occurrences of two high frequency terms together in the same paper, setting up the original co-word matrix. Fourth, the statistical analysis: we made MeSH term's clustering analysis

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using SPSS13.0 statistical software, draw the co-word network graph of the high frequency terms using Cytoscape software[5].

THE MESH TERMS ANALYSIS OF PAPERS ABOUT HYPERTENSION NURSING

The MeSH terms word frequency analysis

We retrieved 1311 papers, among them we got 1254 papers with MeSH terms, we extracted MeSH terms and established the MeSH terms database. We got 20 MeSH terms of nursing which occurrences frequency was over 80 (including 80) (excluding of Humans, Female and Male, and so on, which meaning is widespread, are associated with many keywords, are not analysis value of the MeSH). From TABLE 1, we can infered some ideas: the relevant research of hypertension nursing hotspots mainly concentrated in the aged, epidemiology, organization & administration, etc, it also suggests that the aged has become hypertension nursing most major research hotspots.

TABLE 1 : The top 20 MeSH terms about hypertension nursing

Ranking	MeSH terms	Occurrences frequency（times）
1	Hypertension	757
2	Aged	353
3	epidemiology	338
4	Nurse Practitioners	191
5	organization & administration	166
6	physiopathology	153
7	Antihypertensive Agents	149
8	Patient Education as Topic	149
9	psychology	144
10	Questionnaires	142
11	Blood Pressure	141
12	adverse effects	140
13	Adolescent	127
14	Life Style	113
15	Aged, 80 and over	103
16	Blood Pressure Determination	103
17	Primary Health Care	97
18	Nursing Assessment	94
19	Obesity	94
20	Prevalence	80

Clustering analysis of the high frequency MeSH terms

This research used hierarchical clustering analysis which is one of the most commonly used Classify analysis to analyze the above 20 MeSH terms, drew a dendrogram, and the results were shown in Figure 1.
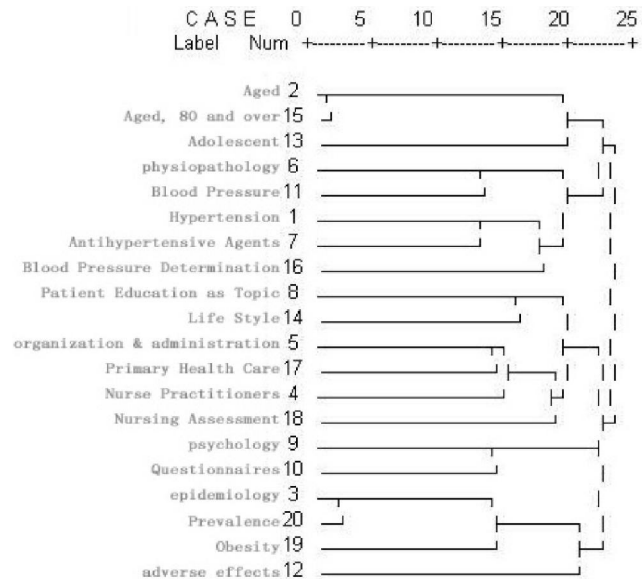

Figure 1 : Hierarchical clustering analysis dendrogram of MeSH terms

From the Figure 1, in addition to individual MeSH term as " epidemiology ", we could seen the other high frequency MeSH terms could be divided into the following five groups. Group 1 contains MeSH terms (Aged0Aged, 80 and over0Adolescent), it suggests that the age group of Hypertension nursing research are the elderly group[6], over 80-year-old group, youth group. Group 2 contains MeSH terms (physiopathology,Blood Pressure, Hypertension,Antihypertensive Agents, Blood Pressure Determination), it suggests that the Hypertension diagnosis mainly is measuring blood pressure, Hypertension treatment is mainly antihypertensive drugs, and in the each link of the pathophysiology[4]. Group 3 contains MeSH terms (Patient Education as Topic, Life Style, organization & administration, Primary Health Care, Nurse Practitioners, Nursing Assessment), it suggests that Hypertension nursing focused on lifestyle[2], organization and management of patients, primary health care, patient education by the theme[3], etc., and the subsequent nursing assessment. Group 4 contains MeSH terms (psychology0Questionnaires), it suggests that the Hypertension psychological nursing research

are mainly dong by questionnaire survey. Group 5 contains MeSH terms (Prevalence, Obesity, adverse effects), it suggests that the prevalence of Hypertension is associated with obesity level, obesity is bad influence factors of Hypertension[7].

The above clustering results suggest that several MeSH terms within one group have certain inherent logic connection between each other; If there are no known correlation between the MeSH terms, it indicates we find a new research hotspot.

Co-word network graph of the high frequency MeSH terms pair

By analyzing MeSH terms of the top 20 (word frequency), we got the top 16 MeSH terms pair (A and B, see TABLE 2) and co-word network graph of the MeSH terms pair (see Figure 2). Especially the first MeSH terms pair of Hypertension and Aged appeared 220 times in the same paper, the second MeSH terms pair of Hypertension and epidemiology appeared 208 times in the same paper, it was far higher than that of the third MeSH terms pair (135 times, Hypertension and Nurse Practitioners).

TABLE 2 : The top 16 MeSH terms pair

Ranking	MeSH terms A	MeSH terms B	Co-word occurrences Frequency (times)
1	Hypertension	Aged	220
2	Hypertension	epidemiology	208
3	Hypertension	Nurse Practitioners	135
4	Hypertension	Antihypertensive Agents	132
5	Hypertension	Blood Pressure	121
6	Hypertension	Patient Education as Topic	105
7	Hypertension	psychology	103
8	Aged	epidemiology	102
9	Aged	Aged, 80 and over	100
10	Hypertension	organization & administration	93
11	Hypertension	Life Style	91
12	Hypertension	Blood Pressure Determination	87
13	Hypertension	Questionnaires	87
14	Hypertension	physiopathology	84
15	epidemiology	Prevalence	76
16	Hypertension	Obesity	76

In Figure 2 the edge represents the concurrence relationship between MeSH terms pair and if the edge between one MeSH term to other MeSH term, it suggests that the one MeSH term is more important, it is in the center of the research hotspots. So we could infer that According to age groups taking different nursing measures is the research hotspots now.
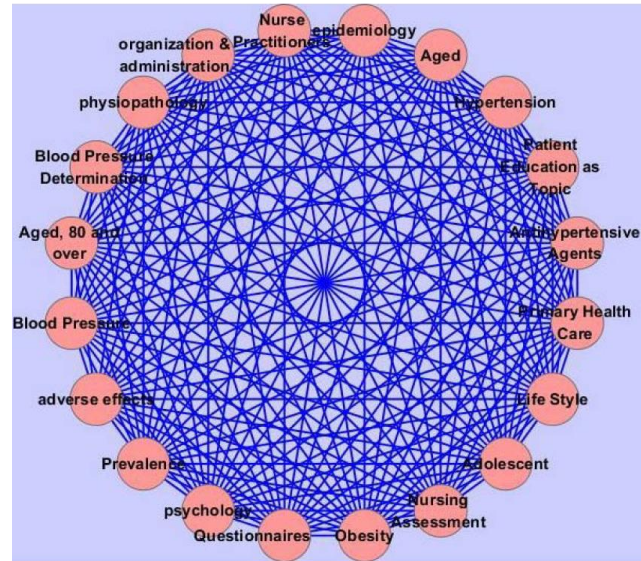

Figure 2 : Co-word network graph of the high frequency MeSH terms pair

CONCLUDING REMARKS

By analyzing MeSH terms (word frequency analysis, clustering analysis, co-word network graph) of PubMed papers about hypertension nursing, we could infer that the current Hypertension nursing research hotspots had focus on the aged, epidemiology, organization & administration, etc, it also suggests that According to age groups taking different nursing measures is the research hotspots now, and the elderly is very need to pay special attention.

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