

5th Global Pharmacists Annual Meeting

July 14-15, 2016 Brisbane, Australia

A clustering method of TCM prescriptions based on modified firefly algorithm

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This paper is aimed at studying the clustering for TCM medical cases. The traditional *K-means* clustering algorithm had shortcomings such as dependence of results on the selection of initial value, trapping in local optimum when processing prescriptions form TCM medical cases, to overcome it, a new clustering method based on the collaboration of firefly algorithm and simulated annealing was proposed. This algorithm dynamically determines the iteration of firefly algorithm and simulates sampling of annealing algorithm by fitness changes, and increases the diversity of swarm through expansion of the scope of the sudden jump, thereby effectively avoiding premature problem. The results from confirmatory experiments for TCM medical cases suggested that, comparing with traditional *K-Means* clustering algorithms, this method was greatly improved in the individual diversity and the obtained clustering results, the computing results from this method had a certain reference value for cluster analysis on TCM prescriptions.

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The role of the Clinical Pharmacist in providing adequate pharmaceutical care to patients at pharmacy and clinic: How it is implemented in Ukraine?

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In Ukraine the specialty Clinical pharmacy was introduced in 1999. After 5 years of study in a special program and the completion of an internship (duration 1 year) graduates receive qualification clinical pharmacist and the right to work in hospitals and the pharmacy. Education in Clinical Pharmacy program contains more biomedical disciplines than in the specialty "Pharmacy", in which there are more chemical, technological and economic disciplines. Core competencies and skills of the clinical pharmacist at the pharmacy are: an estimation of pharmacy visitor's complaints, choosing and release non-prescription medicines, pharmaceutical care, rational use of drugs, individual dose calculation, selection of dosage form, prevention of adverse reactions, especially antibiotic resistance, training of responsible self-treatment. For the standardization of pharmaceutical care the protocols for the release of OTC-drugs were developed and approved the Ministry of Health. Core competencies and skills of clinical pharmacist in a hospital are: work in a therapeutic team, together with the doctor, nurse, diagnosticians, analysis of list of prescriptions, personal choice drugs, the calculation of individual doses, the analysis of drug-drug interactions, prevention of adverse reactions, control the use of narcotic drugs, pharmacovigilance, drug formulary compilation, generic substitution of drugs. Clinical pharmacists can be involved in clinical trials of the original drugs, and in the study of the bioequivalence of generics. 10 years' experience of clinical pharmacists in Ukraine shows a significant public health benefit of such specialists. However, many difficult issues still remain, especially after the adoption of a new concept of pharmaceutical education.

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