Advancing Direct Patient Care (DPC) Through Postgraduate Pharmacy Residency/Fellowship Program

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In 2003, representatives from school of pharmacy and Thai Pharmacy council met to discuss the need for initiation of an organized, directed, postgraduate training program in a defined area of pharmacy practice also known as "residency" and "fellowship" program. In 2006, the residency program is formally established and offered in 3 state universities including Khon Kaen University, Prince Songkla University and Naresuan University. Subsequently, 3 more institutions naming Chulalongkorn University, Mahidol University, and Silpakorn University.

A residency may occur at any career point following an entry level degree in Pharmacy. Individuals planning practice-oriented careers are encouraged to complete all academic education before entry into a residency. Residency and Fellowship in Thailand are integrated into intensive 4-yr program. The first year "Pharmacy Practice Resident (PGYI)" exists primarily to train pharmacists in professional practice and management activities. Residencies provide experience in integrating pharmacy services with the comprehensive needs of individual practice settings and provide in-depth practice skills and knowledge. The resident's practice experiences are closely directed and evaluated by a qualified preceptors, preceptors and mentors.

The 2nd and 3rd year "Specialized Residences" advance an ability to conceptualize new and improved pharmacy services. Within a given residency program, there is considerable consistency in content for each resident. In addition, accreditation standards and program guidelines produced by College of Pharmacotherapy of Thailand (C.P.T) provide considerable program content detail and maintain consistency among programs.

The 4th year "Fellowship" aims primarily to develop competency in the scientific research process, including conceptualizing, planning, conducting, and reporting research. Under the close direction and instruction of a qualified researcher-preceptor. A fellow receives a highly individualized learning experience that utilizes the fellow's research interests and knowledge needs as a focus for his or her education and training. A fellowship candidate is expected to possess basic practice skills relevant to the knowledge area of the fellowship. Such skills may be obtained through practice experience or through an appropriate residency and should be maintained during the program.

Characteristic Factors and Prescription Patterns that Affect Regimen Complexity in Parkinson Patients, Using Medication Regimen Complexity Index (MRCI) Score Tool

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Purpose: To investigate correlation of medication regimen complexity index (MRCI) scores with patient characteristic factors in Parkinsonism, and to determine contribution of MRCI details in three sections (dosage form, timing frequency, additional direction) for these patients.

Method: Parkinson disease patients who visit the tertiary teaching hospital ambulatory clinic were included in this study. The ICD-10 code was used for definition of disease. Electronic medical records of these patients were reviewed during 6-month period (January to June in 2014) retrospectively. Each MRCI scores of total prescribed drugs and Parkinson drugs were calculated. Number of drugs was also reviewed in the same way. Primary outcome was correlation of MRCI scores with patient characteristic factors. Age, sex, duration of disease and number of comorbidity were investigated as characteristic factors. Multiple linear regression was performed for analysis. Statistical significance was assigned for $P<0.05$. Secondary outcome was proportion of three A, B, C sections (A: dosage form, B: timing frequency, C: additional direction) in calculated scores. This proportion means what factors that make more difficult when taking medicine.

Result: 465 patients were enrolled in this study. 199 (42.5%) patients were male. Median age of patients was 72 (range: 25-98), IQR: 13. Median MRCI scores of all drugs and Parkinson disease drugs were 14 (2-23), 9 (6-25), 5 (0-11), respectively. 66 (23%), 4 and 2 (1-71) were median number of prescribed drugs. The correlation of MRCI scores and characteristic factors was confirmed using multiple linear regression. Sex, duration of disease and number of comorbidity were correlated, but age was not affected MRCI scores ($P=0.21, P=0.0001$). Mean proportion of three MRCI sections were 11%, 82% and 7%, respectively. "Dosing frequency" was high score section, especially "once daily", "twice daily" and "three times daily" details (medianIQR) MRCI scores 205, 46, 30, respectively. Total MRCI scores were grouped into three groups (low: less than 15, moderate: 15 to 25, high: 25 or more). There were significant differences about Number and MRCI scores of Parkinson drugs in three groups ($P<0.001$). Number of comorbidity was different significantly in three groups, but as result of post hoc analysis, moderate and high group were not statistically significant ($P=0.05$. Number of Parkinson drugs was grouped by two groups (low: 1 or 2 drugs, high: more than 3). Duration of disease was different significantly (medianIQR) 949 (13-6010), 1416, 1839 (13-6258), 2178, respectively ($P<0.001$).

Conclusion: MRCI scores are affected by sex, duration of disease, number of comorbidity in Parkinsonism. Total scores are increased disease period is longer, and MRCI score and number of Parkinson drugs values show the same tendency with total values of MRCI. Taking drugs over multiple times is expected important point about drug adherence in Parkinsonism. Recently developed drugs like extended release form or combination product form can be decreased frequency of taking medicine, and will contribute in improving the adherence.

Key words: Parkinson disease, MRCI (medication regimen complexity index), Drug adherence