Pregnancy drug use in Beijing district during 2016-2018: an analysis of data from Beijing Prescription Evaluation System

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Abstract

Aims: To investigate the characteristics of prescriptions during pregnancy from Beijing Prescription Comment System from 2016 to 2018. Methods: Data was extracted and selected in the system with key words according to inclusion criteria. We examined patterns and assessed risks with FDA category categorization. Factors associated to D/X, C, N/A categories were explored through multivariate logistic regression. We re-classified the drugs with Briggs categorization of B, C, D, N/A categories. Results: From 5,446,561 prescriptions of Beijing Prescription Comment System, 647 varieties of chemical or biomedical drugs with 112,566 prescriptions were finally included. The prescriptions majorly distributed on patients from 25 to 35 years (68.17%), in 1st and 2nd trimesters (75.05%). Drugs in FDA category were followed by B (23.83%), C (13.37%), X (6.17%), A (3.26%), D (1.7%), while 51.68% not available. In D/X categories, estrogens, assisted reproductive drugs and imaging testing drugs were most. Within X category, prescriptions showed an increase in women under 25 years from 216 to 2018. In drugs of D/X categories, gestational week under 12 weeks (OR=3.259, 95%CI, 1.441-7.37) matters most among risk factors of specialized hospitals, gestational age between 30 and 35, and non-obstetrics and gynecology departments. Under Briggs categorization, FDA category C contains more risk drugs in animal or human tests (74.25%) according to Briggs categorization. Conclusions: This research explored exposure of pregnant women to potential risk drugs by FDA category and Briggs categorization. Main characteristics and risk factors revealed by this study should be monitored in the ongoing studies on pregnancy drug safety.

Dear Editor,

I would like to submit our manuscript entitled "**Pregnancy drug use in Beijing district during 2016-2018: an analysis of data from Beijing Prescription Evaluation System**" for publication in*BRITISH JOURNAL OF CLINICAL PHARMACOLOGY.*We performed an analysis of prescriptions during pregnancy from Beijing Prescription Comment System from 2016 to 2018. We extracted prescriptions with key words from the system, and screened with specific criteria, in order to summarize and evaluate the patterns and risk factors associated to drugs during pregnancy. Ultimately, we included 647 varieties of chemical or biomedical drugs with 112,566 prescriptions. We performed data processing and statistical analyzes using SPSS 22.0 and Graphpad 8.0 software. Characteristics of prescriptions were evaluated through gestational age, gestational week, prescribing year, prescribing departments. Potential risk of drugs was assessed with FDA categorization, with pareto charts of the drugs or departments. We also carried out multiple logistic regression to explore the risk factors associated to drugs of C, D/X, N/A categories. Finally, drug risk re-

classification was performed with Briggs categorization of medicine in B, C, D, N/A categories. The paper described above is original work and has not been published elsewhere, in whole or in part. None of the authors have any conflicts of interests to report. We greatly appreciate your time to review our manuscript and we look forward to hearing from you in due course. Yours sincerely, DU Boran Corresponding author FENG Xin Email: fengxin1115@126.com

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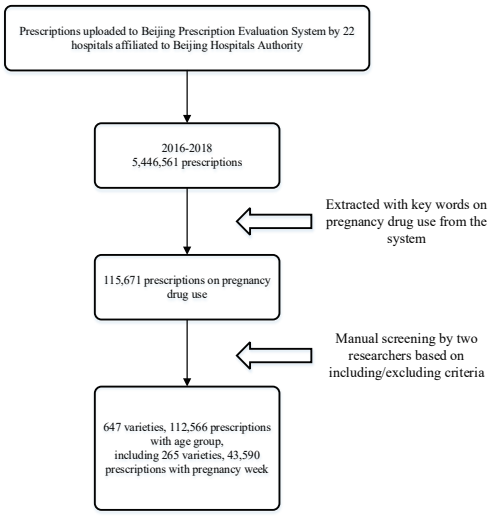

Figure 1 Flowchart of selection of drug prescriptions on pregnancy use

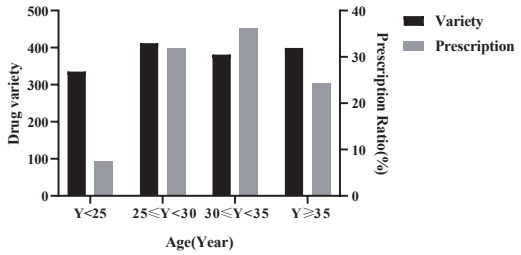

Figure 2 Varieties and prescriptions in age groups of chemical/biomedical drugs

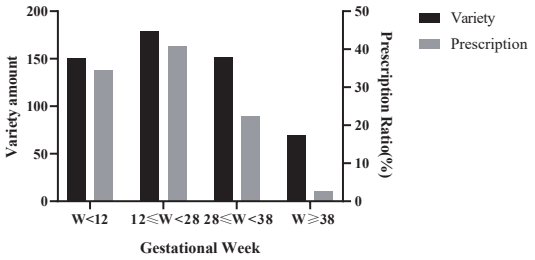

Figure 3 Varieties and prescriptions in gestational week groups of chemical-biomedical drugs

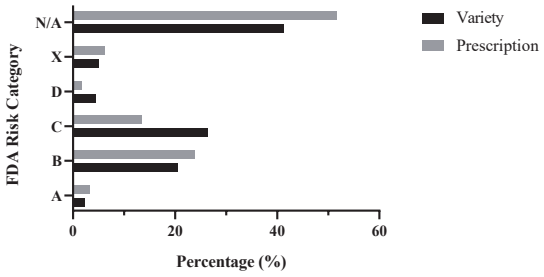

Figure 4 Ratio in FDA risk categories of chemical-biomedical drugs

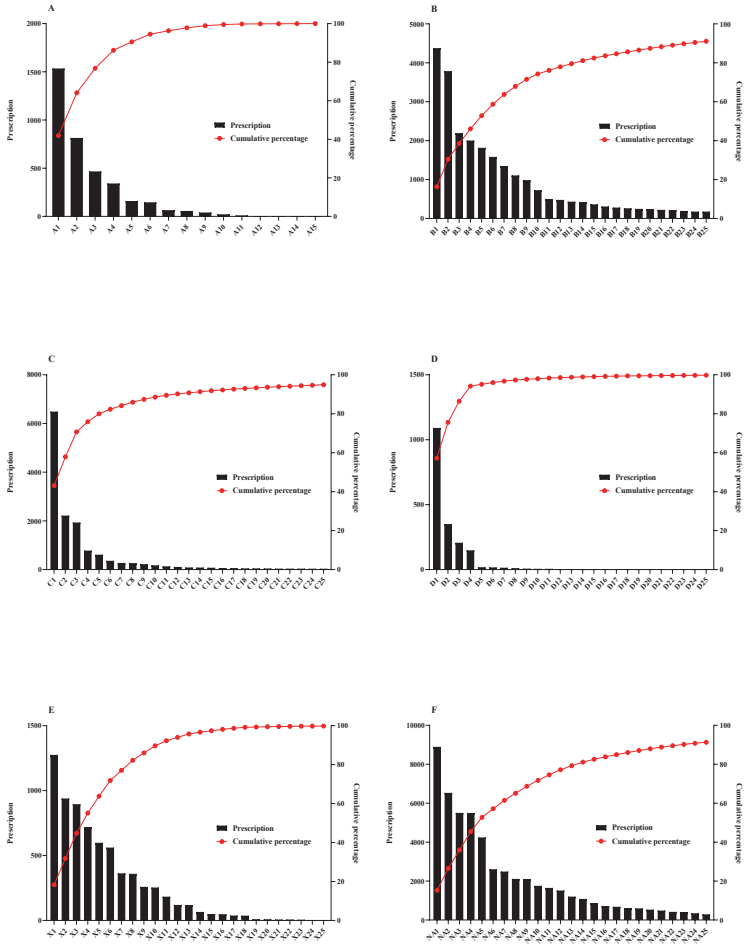

Figure 5 Pareto chart of drug varieties in FDA categories (A, Category A; B, Category B; C, Category C; D, Category D; E, Category X; F, not available in FDA categories)

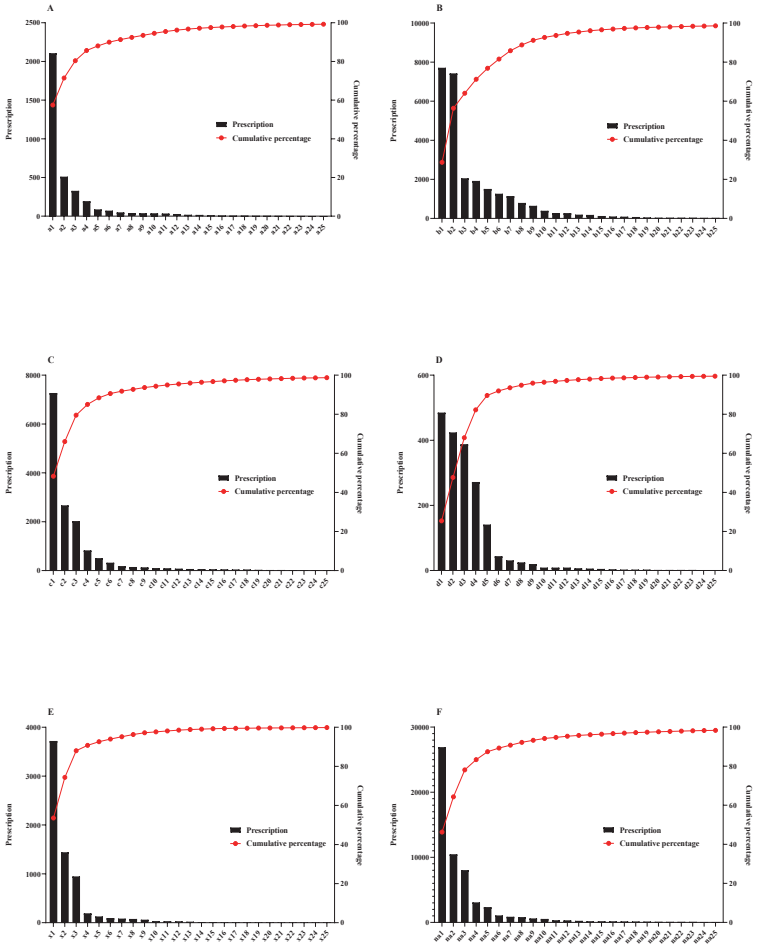

Figure 6 Pareto chart of prescribing departments in FDA categories (A, Category A; B, Category B; C, Category C; D, Category D; E, Category X; F, not available in FDA categories)

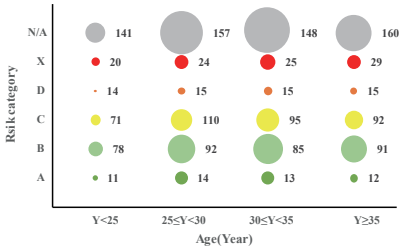

Figure 7 Distribution of prescriptions and varieties of FDA categories in different age groups (area of circle means prescription quantity; the number on the right side means the drug varieties)

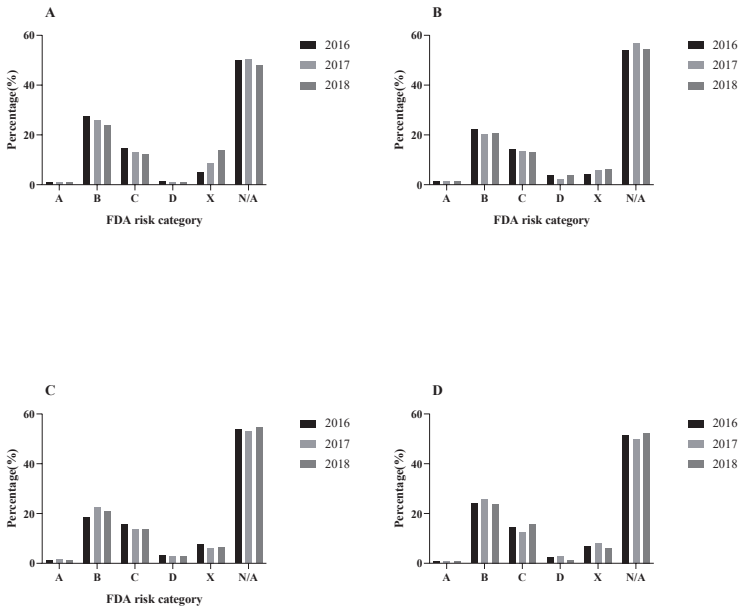

Figure 8 Distribution of prescriptions in FDA categories from 2016 to 2018 in different age groups (A, gestational age under 25; B, gestational age between 25 and 30; C, gestational age between 30 and 35; D, gestational age above 35)

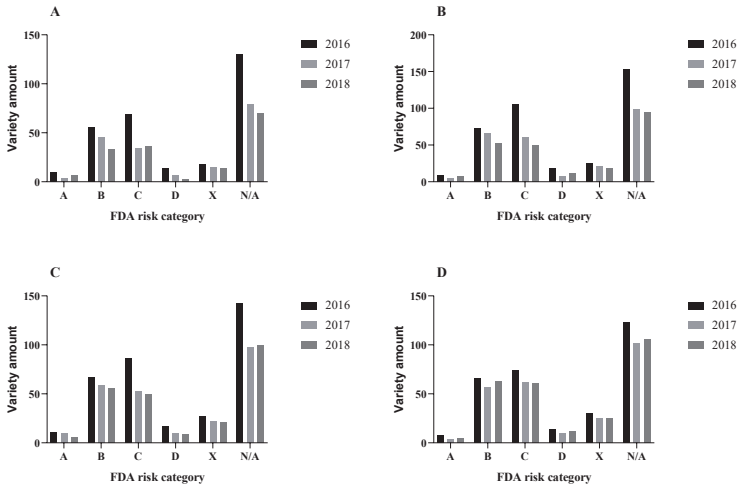

Figure 9 Distribution of drug varieties in FDA categories from 2016 to 2018 in different age groups (A, gestational age under 25; B, gestational age between 25 and 30; C, gestational age between 30 and 35; D, gestational age above 35)

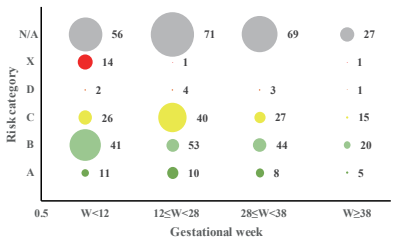

Figure 10 Distribution of prescriptions and varieties of FDA categories in different gestational week groups (area of circle means prescription quantity; the number on the right side means the drug varieties)

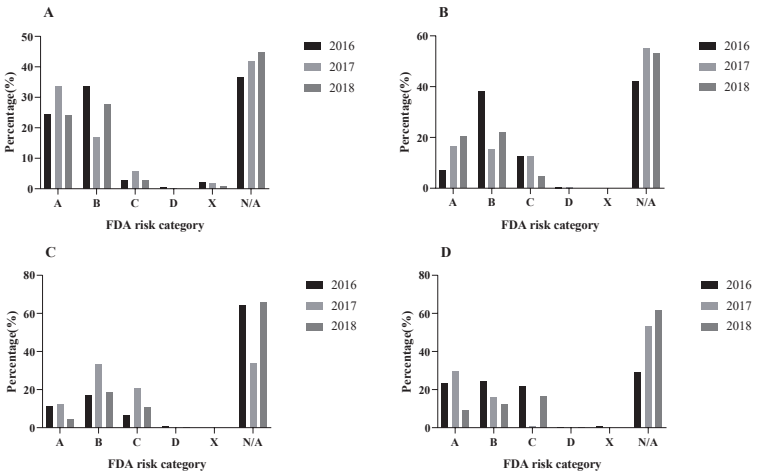

Figure 11 Distribution of prescriptions in FDA categories from 2016 to 2018 in different gestational week groups (A, gestational week under 12; B, gestational week between 12 and 28; C, gestational week between 28 and 38; D, gestational week above 38)

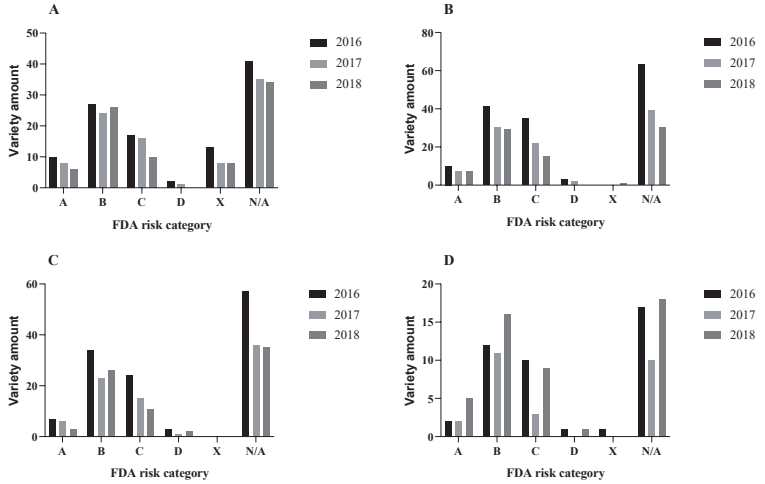

Figure 12 Distribution of drug varieties in FDA categories from 2016 to 2018 in different gestational week groups (A, gestational week under 12; B, gestational week between 12 and 28; C, gestational week between 28 and 38; D, gestational week above 38)

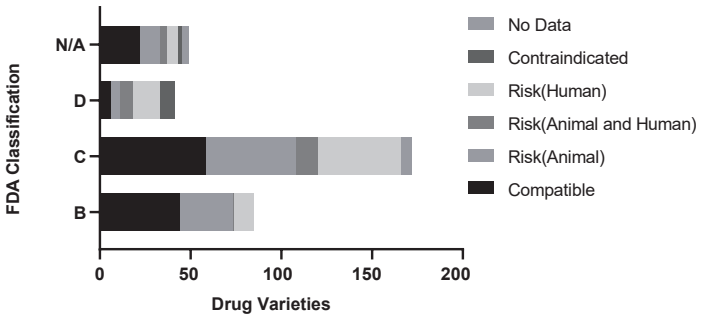

Figure 13 Re-classification of drug varieties with Briggs system in different FDA categories (B, C, D, X, N/A)

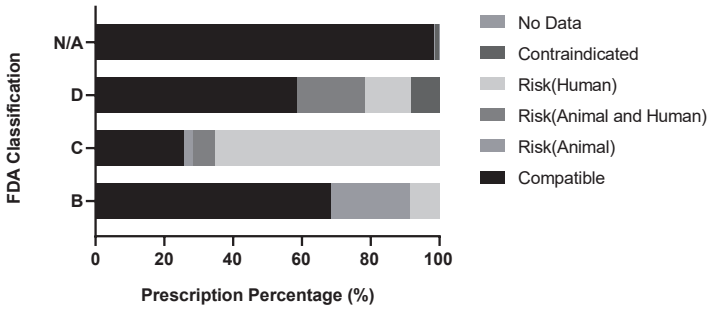

Figure 14 Re-classification of prescriptions with Briggs system in different FDA categories (B, C, D, X, N/A)

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