K29 Drug Trends in Korea and the Detection of Synthetic Cannabinoids in the Hair of Drug Abusers

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Learning Overview: After attending this presentation, attendees will understand the drug trends in Korea and the detection of synthetic cannabinoids in the hair of drug abusers.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing drug trends in Korea and data from the detection of synthetic cannabinoids in the hair of drug abusers in three recent years (2016–2018).

Introduction: Before the 1980s, opium and methadone were widely used in Korea. Since the 1970s, marijuana has become a public health concern, especially for entertainers. Methamphetamine has also spread remarkably in the domestic market and become the most frequently abused drug in Korea from the 1980s to the present. The first of the New Psychoactive Substances (NPS) appeared in Korea in 2009 and has increased rapidly. This study investigated the drug trends in Korea and the results from the detection of synthetic cannabinoids in the hair of drug abusers for three recent years (2016–2018).

Methods: The drug trends in Korea were referenced from the Drug Crime Report 2018 published by the Supreme Public Prosecutor's Office. The numbers of arrested drug criminals, arrests by drug crime type, arrests by the criminal's age, and arrested foreign drug criminals and their nationalities were investigated. The method used to analyze synthetic cannabinoids in hair samples was conducted according to the standard operation procedure of the National Forensic Service (NFS). In brief, the drugs in hair samples were extracted in ethanol and analyzed by liquid chromatography-tandem mass spectrometry. In total, 59 synthetic cannabinoids (18 synthetic cannabinoids and 41 of their metabolites) were screened.

Results: The number of arrested drug criminals in Korea has exceeded 10,000 since 2015 and was 12,613 in 2018. The number-one type of drug crime was "use" (making up 49% of the total), followed by "trafficking" (22%) and "possession" (8.6%). In contrast, "manufacture" was the lowest drug crime at 0.1% of the total. Criminals in their 30s and 40s made up 50% of the total. The number of foreign criminals had increased by 220%, from 295 in 2011 to 948 in 2018. Among them, nationals of China were the highest in number (making up 39% of the total), followed by nationals from Thailand (32%), the United States (9%), Taiwan (5%), Vietnam (3%), and Uzbekistan (2%). In 2018, methamphetamine was the drug that was confiscated the most (187,947g), followed by cannabis (89,145g) and cocaine (88,321g). Meanwhile, according to the NFS, the number of seized materials containing NPS at NFS has been increasing rapidly until 2014, and then decreasing gradually. In the three years (2016–2018), the most frequently detected synthetic cannabinoid in the hair of drug abusers was AB-CHMINACA, with a total of 32 cases detected. From 2016 to 2018, the number of cases with synthetic cannabinoids detected in the hair samples was 25, 24, and 4, respectively, indicating that it had decreased significantly in 2018.

Conclusion: Currently, although the most abused drug in Korea is still methamphetamine, the types of drugs being abused are becoming more diverse, especially with the recent emergence of NPS. The amount of cocaine confiscated in 2018 was high, which is considered unusual in Korea, where there are few cases of cocaine abuse. We need to look at the trends for the next few years. The number of synthetic cannabinoids detected in hair samples in 2018 was lower than that of previous years. It seems that newly abused NPS were not detected in the existing analysis. Because the structure of NPS changes so fast, it is difficult to reflect new changes with the existing screening methods established in the laboratory. Therefore, there is an urgent need to establish a method for detecting newly abused NPS (e.g., 5F-ADB, FUB-AMD, etc.) in biological specimens.

Drug Trend, New Psychoactive Substances, Synthetic Cannabinoids