Amphetamine - General Effects

Amphetamine (Adderall, Vyvanse) is a central nervous system (CNS) stimulant.

1. Amphetamine is used medicinally to treat attention deficit/hyperactivity disorder, obesity, and narcolepsy.
    a. Amphetamine has a half-life of 7-34 hours.
    b. Amphetamine has a general therapeutic range, but experienced effects can vary based on an individual's prescription history.
        i. Therapeutic range refers to the blood concentration expected to achieve the desired therapeutic effects. Due to many factors such as prescription history, dosage, tolerance, drug-drug interactions and use, an individual may exhibit signs of impairment even though blood concentrations fall within the therapeutic range.
    c. Amphetamine can be prescribed on its own or it can be detected as a major active metabolite of methamphetamine.
2. Amphetamine is a CNS stimulant that may cause euphoria, excitement, rapid speech, increased risk taking, lowered inhibitions, reduced fatigue/drowsiness, increased alertness, anxiety, increased heart rate and blood pressure, elevated temperature, dry mouth, cramps, altered perception, restlessness, dizziness, tremors, dysphoria, and insomnia. Chronic usage may lead to personality changes, irritability, hyperactivity, and psychosis.
    a. General impairing effects of CNS stimulants on driving behavior during the early phase include impaired divided attention, aggressive driving, taking unnecessary risks, over-confidence in abilities, disorientation, and inability to maintain lane position.
    b. Amphetamine withdrawal can manifest as depressant effects including, but not limited to, exhaustion, depression, loss of attention, lack of concentration, and fatigue. General impairing effects on driving behavior during the withdrawal phase include drowsiness, fatigue, drifting out of the lane of travel and falling asleep at the wheel.
3. The longer an individual uses a drug, the more they can build up a tolerance to its effects. Tolerance occurs when an individual no longer responds to the drug in the way that they initially responded. When an individual gains tolerance to a drug, a higher dose of the drug is necessary to achieve the same level or response initially achieved. As tolerance is gained, it may reduce some of the possible negative effects of a drug.
4. Drug metabolism (alcohol excluded) exhibits first order kinetics, or the elimination of a constant fraction of drug quantity per unit of time, which means that the amount eliminated is proportional to the drug concentration.
5. The use of more than one drug at a time may enhance the effects the drugs would otherwise have on their own, leading to greater impairment.

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** The interpretive information provided is not exhaustive nor meant to encompass all scenarios where toxicological results are reported. Interpretive information is meant to serve as a general guide for the reader and that for any given case, consultation with a forensic toxicologist is recommended. **