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Crime and hypnotic ($GABA_A$ receptor agonist) - induced transient anterograde amnesia:

- Rape drugs in Japan -

Asahikawa Medical University
Department of Legal medicine
Keiko Shimizu (M.D.,Ph.D.)

Today's Topic

Human rights abuses via misuse of medications as rape-drugs

DFSA (Drug-Facilitated Sexual Assault) ： 準強制性交等罪

Drug-facilitated sexual assault(DFSA) is an umbrella term for sex crimes committed using drugs. It involves the administration of an anesthesia-inducing drug to make the victim physically incapacitated or helpless, and thus incapable of giving or withholding consent of subsequent action by the perpetrator. Administration of the drug may cause the victim to become unconscious during all or parts of the sexual assault. DFSA is illegal, and is a crime punishable by imprisonment, fine, or both.

https://definitions.uslegal.com/d/drug-facilitated-sexual-assault/

Introduction

Incidents in which the victims do not know they have been given hypnotic drugs and have become victims of DFSA or drugging-robbery have been occurring throughout Japan since several decades ago. Because of the anterograde amnesia induced by the hypnotic drugs ($GABA_A$ receptor agonist), the victims' lack of memory or confusion about the incident becomes a problem during many investigations and trials; an issue that stubbornly persists, even to date in Japan.

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総　　説

犯罪と睡眠薬（$GABA_A$ 受容体作動薬）による一過性前向健忘

清水　恵子[1)]，浅利　優[1)]，奥田　勝博[1)]，田中　宏樹[1)]，塩野　寛[1)]，松原　和夫[2)]

1）旭川医科大学法医学講座　〒078-8510　旭川市緑が丘東 2-1-1-1

2）京都大学医学部附属病院薬剤部　〒606-8507　京都市左京区聖護院川原町 54

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Crime and hypnotic ($GABA_A$ receptor agonist)-induced transient anterograde amnesia.

Keiko SHIMIZU[1)], Masaru ASARI[1)], Katsuhiro OKUDA[1)], Hiroki TANAKA[1)], Hiroshi SHIONO[1)], Kazuo MATSUBARA[2)]

1) Department of Legal Medicine, Asahikawa Medical University

2) Department of Clinical Pharmacology & Therapeutics, Kyoto University Hospital

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10 **Summary**
まとめ

Abstract (1)

It is well known that excessive EtOH consumption can result in memory loss, a phenomenon referred to as alcoholic transient anterograde amnesia(TAA). Certain criminals know that a knowledge that a small amount of sedative-hypnotic, such as $GABA_A$ (gamma–aminobutyric $acid_A$) receptor agonist by itself, or in combination with a small amount of EtOH, can induce TAA in victims. Prescription medications used for the purposes of committing drug-facilitated sexual assaults (DFSAs) are termed as "date-rape drugs", also referred to as "predator drugs" or "club drugs" in the West.

Abstract (2)

The existence of hypnotic-induced transient anterograde amnesia(TAA) is common knowledge among some healthcare professionals: however this fact remains poorly understood by the community at large in Japan, including criminal investigators. Criminals have exploited hypnotic-induced TAA in both female and male victims in various criminal incidents. When investigating said incidents involving DFSA and drugging-robbery, criminal investigating agencies and relevant authorities should expect to hear victims saying things such as: "I don't remember anything after consuming the drink the offender gave me, so the crime must have occurred after I have taken the drink, or when I became unconscious."

Abstract (3)

Criminal investigation agencies, forensic pathologists, and the public in Japan need to be aware that unconsciousness caused by hypnotic-induced transient anterograde amnesia (TAA) results in memory loss of post-TAA events occurring during a crime. Therefore, the rights of disadvantaged victims of said crimes need to be appropriately protected.

Alcohol-induced transient anterograde amnesia (TAA)

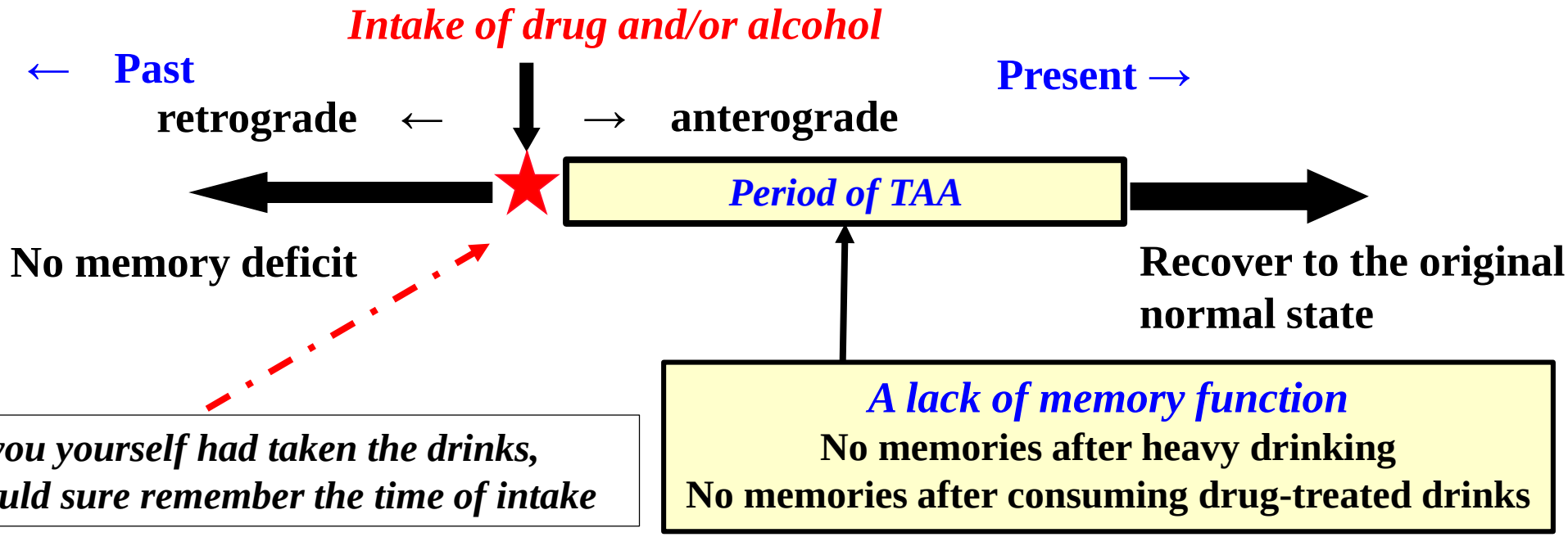
Last night, I drank too much. I can remember when I started drinking; however, I have no memories of events occurring after that at all.

I had no memory from sometime during my drinking but I was able to return home by myself. When I woke up this morning, I found myself in bed at home.

Physical movement is possible even during a blackout.

EtOH- and drug-induced transient anterograde amnesia (TAA)

- **A normal and healthy person losses *memory function* for a certain period of time after having consumed EtOH, which may or may not have previously been mixed with certain drugs (e.g. hypnotics).**
- **Over time, the person's *memory function* is recovered to the original normal state.**



1 A fictional case study of DFSA.

ある事件

CASE 1 DFSA

The victim was a teenage girl.

She applied to become a haircut model via the internet.

After the haircut was finished and before photography began, she was given some orange juice to drink and some pills, which she was told were 'vitamin' pills.

After she had the juice and pills, she had no memory of subsequent events.

Shortly after drinking the juice with the pills, she sent an online message to her friend via SMS Line, she had no memory of sending the SMS.

At midnight, a security camera recorded her being taken to a convenience store by the perpetrator. At that time, just by chance, she met her friend there, but her memory of that meeting was foggy.

According to her friend's witness report, "She didn't have the smell of alcohol, but her eyes were dropping and unfocused, and while being supported by the perpetrator she was unsteady standing on her feet."

The next morning, the victim was extremely surprised to find herself completely naked, lying on bed in an unfamiliar hotel room.

Then she sent a message to her friend via SMS Line before returning home by herself.

She had no memory at all of events between drinking the juice with the ‘vitamin’ pills and waking up the next morning lying completely naked on the bed in an unfamiliar place, she has no memory at all.

That same day after returning home, and wondering what might have happened to her the previous night, she went to the police station to report the incident.

Fortunately for her, the first police man she talked to believed her story and took charge of further investigations.

According to blood and urine tests of the victim conducted by the police institute of scientific investigation after the victim's report, hypnotic drugs and their metabolites were detected in the samples. The victim ascertained that she had not taken any of the detected drugs by herself before the incident.

On follow-up investigations, the police found photographs of the victim in the keeping by said perpetrator. The victim has no memory of being photographed.

The hypnotics used by said criminal were drugs which had been prescribed for the criminal himself.

仕事の打ち合わせのコーヒー牛乳に まで混入…

酒席だけではない レイプ・ドラッグ の罠

DFSA Case

A business woman who was visiting a client's office was given a cup of coffee previously mixed with a hypnotic drug. This incident has in fact been reported in a weekly magazine.

週刊朝日 2017. 10. 20 創刊

日本の報告例

二〇一五年には、さらに詳しく病理学的な解明を試みた論文が日本でも出ている。「医薬品の不法使用―Drug Facilitated Sexual Assault（DFSA）に使用されるデートレイプドラッグ（date rape drug）について―」（清水惠子[1]、浅利優[1]、奥田勝博[1]、塩野寛[1]、松原和夫[2]　1＝旭川医科大学法医学講座、2＝京都大学医学部附属病院薬剤部　『犯罪学雑誌』第82巻第2号35～43頁、日本犯罪学会、２０１６年）という論文だ。これはかなり専門的な内容なので、以下、噛み砕いた上でポイントとなるところを、かいつまんでご紹介しよう。

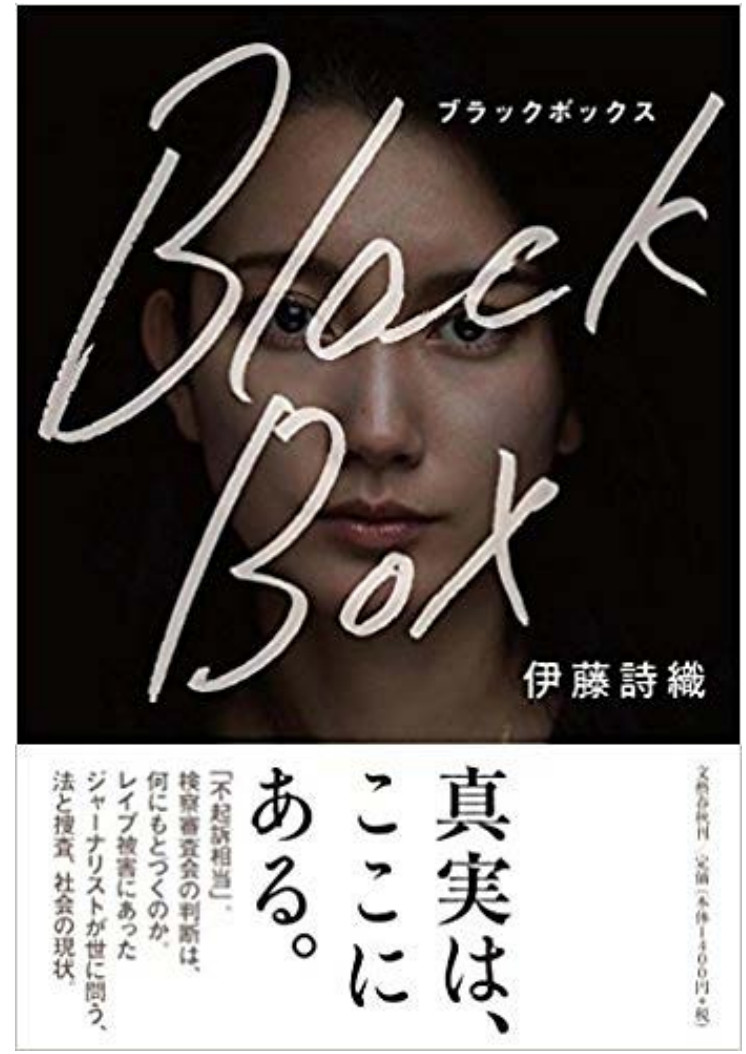
論文によると、デートレイプドラッ
きている。最近では、元大学医学部講
女性七人をマンションに誘い、飲酒さ
ない状態で暴行に及んだ。

「常習性の高い計画的な犯行で、卑劣
厳しく非難したという。（ちなみに、な
く、合意の壁を崩しやすかったためだろ

論文筆者らが一九九五年に関わった
た女子高生をカラオケに誘い、コーラ
的暴行を加えて、販売を目的としたビ

この事件では、被害者に記憶がなか
いて法医学講座に問い合わせがあった
でから一定期間の記憶を失うことを実
達物質の変化を神経科学的に解明した

In October 2017, a certain freelance journalist published a non-fiction book about her personal experience about being a victim of DFSA, using her real name.



伊藤詩織(2017). Black Box　文藝春秋　pp179-183.

2 Analysis of the incidents.

事件の分析

Looking at each individual case, we can see the following commonalities among them.

(1) Before the incident, an innocent and naïve person is unaware of being subsequently placed in a disadvantageous victimized situation.

(2) The victim loses all memory in a relatively short time after oral intake of beverages/food previously mixed with hypnotics by the criminal.

(3) The victim gradually regains memory after a certain time-lapse, usually lasting from several hours to half a day.

(4) The victim talks to the police or a staff member at a victim-support center.

3　Drugs used to commit DFSA crimes in Japan.

日本で犯行に使用される薬物

The main drug category abused for DFSA in Japan is the $GABA_A$ receptor agonists, which include various kinds of hypnotic drugs.

Low therapeutic doses of hypnotic drugs ($GABA_A$ receptor agonists) given orally can result in impaired memory.

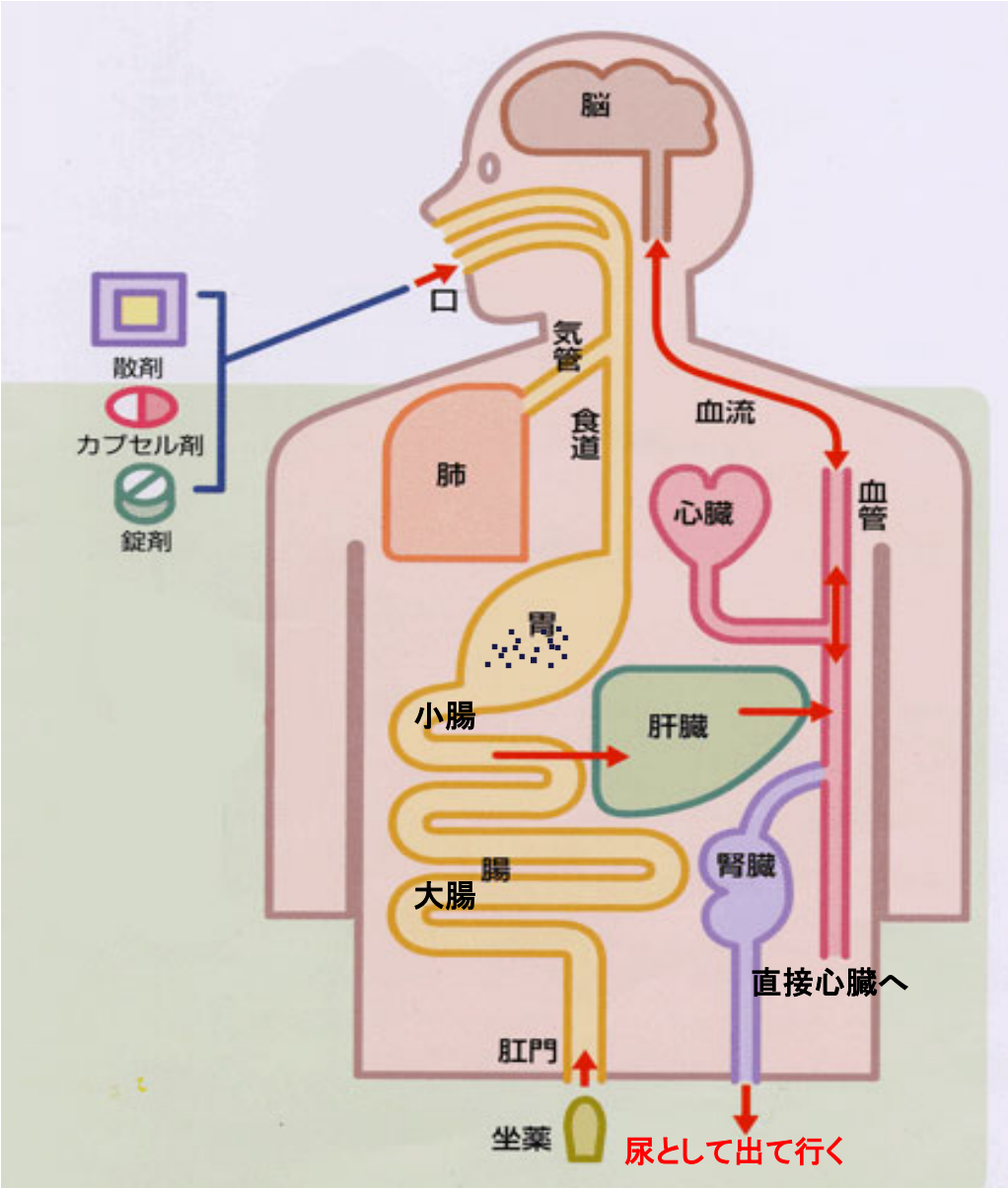
Ultra-short-acting hypnotics are favored by Japanese criminals because the proof of their use is practically difficult to traced, as these chemical agents are promptly metabolized and excreted from the body rapidly without trace.

Examples of hypnotics ($GABA_A$ receptor agonists) that can be used for DFSA in Japan

generic name	reaction time elimination half-time (hr)	prescription target
Zolpidem* Triazolam	ultra-short-acting （2～4）	insomnia 入眠困難
Etizolam* Brotizolam*	short-acting （6～10）	insomnia 入眠困難
Estazolam Nimetazepam Flunitrazepam	intermediate -acting （12～24）	nocturnal awakening 中途覚醒
Quazepam flurazepam	long-acting （24～）	nocturnal awakening 中途覚醒

* The chemical structures of these drugs are unrelated to benzodiazepines (BZD); however, these agents interact with the BZD-binding site of $GABA_A$/chloride ion channel receptor complex.

Pharmacokinetics of oral drugs



Oral drugs react with gastric acid and juices after intake in the stomach before proceeding to the small intestine for absorption into the circulatory system after undergoing the first-pass effect in the liver. Therefore, these agents are more quickly absorbed in food-deprived (e.g. fasting) humans, and being water-soluble they are fast-acting and highly effective after oral intake.

↓

【absorption】 – Drug is absorbed in the small intestine and is transported to the liver. Drug is metabolized as they pass through the liver (First-pass effect).

↓

【distribution】 – Drug distribution is the process of delivering a drug from the bloodstream to various tissues/organs of the body – especially to target tissues/organs where its actions are needed.

↓

【metabolite】 → 【excretion】

It takes about 15-30 minutes before the onset of action of oral drugs.

4 The pharmacological effects of hypnotics and alcohol (EtOH) .

睡眠薬とアルコール飲料（エタノール）の薬理作用

GABA (gamma-aminobutyric acid) is the most widely distributed inhibitory neurotransmitter in the human central nervous system (CNS).

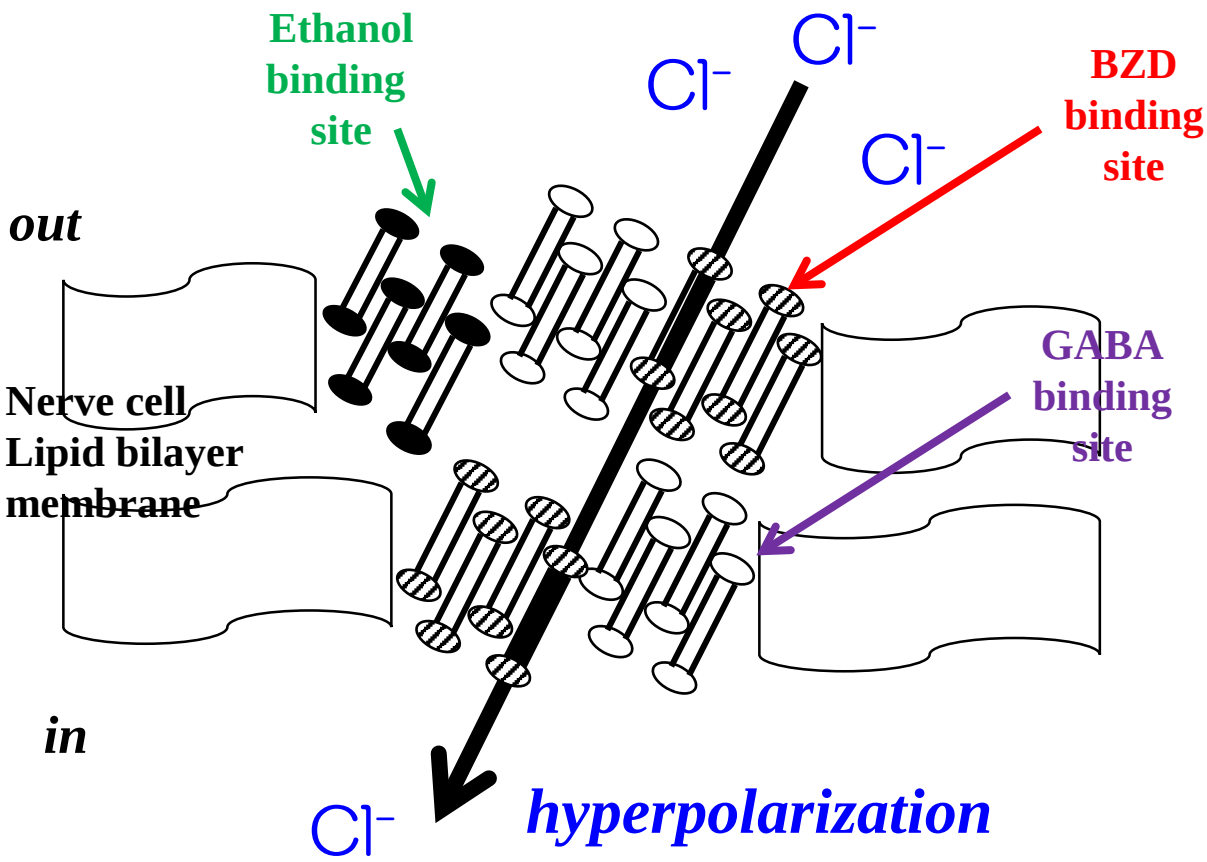
By binding to its receptor, GABA induces a certain degree of depression.

Hypnotic drugs ($GABA_A$ receptor agonists) and ethanol (EtOH) express their pharmacological effects by binding to BZD binding site and EtOH binding site of the $GABA_A$/ chloride ion channel receptor complex, respectively.

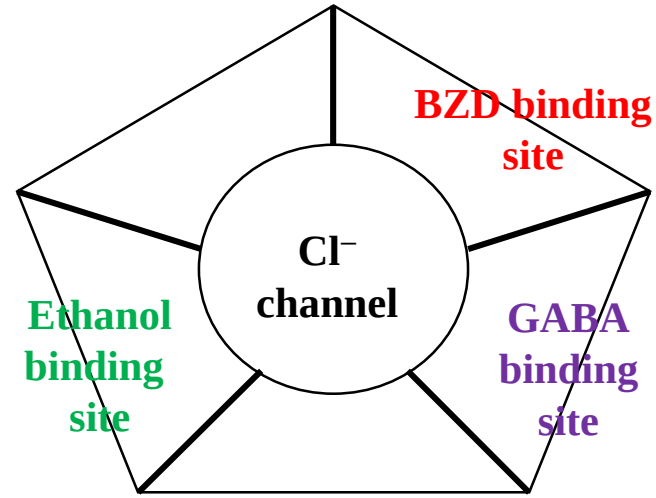
Since both hypnotic drugs and EtOH bind to the same receptor within the human body and elicit inhibitory effects on the CNS, concomitant use of both potentiates the depressive effect.

The $GABA_A$ receptor coupled to a chloride channel to serve as a modulatory site for BZD and ethanol binding. A chloride allows negatively charged Cl^- ions to enter the neurons and lower the resting membrane potential (hyperpolarization), resulting in less excitable neurons and decreased neuronal function.

< General structure of a $GABA_A$ receptor >



< Modulatory sites associated with the $GABA_A$ receptor >



This mechanism of action clinically elicits a mix of CNS actions that include *sedative, hypnotic, anxiolytic, muscle relaxant, amnesic and anti-convulsive effects.*

Common clinical symptoms of DFSA victims and pharmacological effects of hypnotics and ethanol

Common clinical symptoms of DFSA victims	pharmacological effects
Sleepiness, lethargy, cognitive functions decline, and sleep 眠気、倦怠感、認知機能低下、睡眠	**sedative, hypnotic** 鎮静・催眠作用
Unsteadiness, easy to falling down, muscle weakness ふらつき、転倒しやすい、力が入りにくい	**muscle relaxant** 筋弛緩作用
Extreme insensitivity to high-risk situations 危険に対して極めて鈍感な対応 **Unable to be inhibited** 気が大きくなる	**anxiolytic** 抗不安作用
Loss of memory, fragmented memory 記憶の欠如・記憶の断片化	**anterograde amnesia** 前向健忘

5 Evidence of incidents where drugs have been given to victims.

薬物を摂取させられた事実の証明

The detectable periods of the hypnotic drugs used in DFSA

（lower limit of detection < 1ng/mL）

Genetic name	Trade name	Parent compound	Metabolites
Triazolam	Halcyon	3～7 hr	α-OH metabolites　35 hr（urine）
Zolpidem	Myslee	12～18 hr	M-I　5 days（urine）
Etizolam	Depas	1～3 days	α-OH metabolites　2～7 days（blood）
Brotizolam	Lendormin	half day	4 days（urine）
Estazolam	Eurodin	3～7 days	M-VII　5 days (urine）
Flunitrazepam	Rohypnol	3 days	7 days（urine）

Medications-derived metabolites and excretions vary among individuals, so laboratory test results will not always be analogous and uniform.

In the case of a healthy adult, if a time-lapse of more than one week has passed since administration of the drug in a DFSA incident, detection of ultra-short-acting hypnotics will be practically and extremely difficult.

6　Medical literature;

No memory after taking hypnotics for a long overseas flight.

睡眠薬を飲んだ後の記憶がないという

文献報告（医学論文）

Because hypnotic drugs are very useful medications under circumstances, doctors and scientists occasionally self-administer doses of hypnotics, and subsequently report their experiences of drug-induce anterograde amnesia (TAA) in medical journals.

Authors who reported their experience are normally functioning, healthy and intelligent adults; however, they lost their memory for several hours or up to half a day after intake of these oral drugs. Upon recovery, said subjects behave normal and function intelligently.

Brief Report : *Morris et al. JAMA 1987; 258: 945-6*

Traveler's Amnesia

Transient Global Amnesia Secondary to Triazolam (TZ)

Abstract : Three neuroscientists traveled on different occasions from New York to Europe to attend scientific meetings. In an attempt to minimize "jet lag", they all took triazolam (0.5 mg/does) during the flight. In addition to the medication, they also consumed EtOH to a varying degree (none up to clinical intoxication levels). All three experienced an episode of transient anterograde amnesia (TAA) that lasted several hours. Meanwhile, two associated neurologists did not detect any memory disturbance, although they had the similar regimen of hypnotics and EtOH. These episodes of TAA were evidently secondary to the intake of triazolam or the combined use of TZ and EtOH. There episodes suggest that caution must be exercised if such medications were to be used for avoidance of jet lag, especially if EtOH were to be consumed concomitantly with said drugs.

Anterograde amnesia experienced by healthy working neurologists

Case No.	Sex	Age	Dosage	Maximum Duration of Amnesia
1	M	43	Hypnotic* + a small glass of port (three glasses of champagne during dinner)	12 hours (4 hours of sleep included)
2	M	45	Hypnotic* + a glass of wine	11 hours
3	F	33	Hypnotic* + a one beer	9.5 hours

*** Hypnotic: triazolam (TZ) at 0.5-mg dose**

Morris et al. JAMA 1987; 258: 945-6

Case 1 43-year-old, male neurologist

8:00 PM	**Departure (New York)**
	Had two glasses of champagne and an additional one with dinner
11:00 PM	**Had a small glass of port. triazolam, 0.5 mg**
2:30 AM	**Landed in Stockholm**
	Cleared customs with his spouse and other accompanying neurologists and physicians, and subsequently checked in a hotel.
	After checking in his baggage to the hotel, he went out on a sightseeing tour, which included taking photographs, having coffee, and having conversation with another couple.
7:00 AM	**Checked into the hotel, and took a four-hour nap.**
11:00 AM	**Woke up and went out for dinner with companies**

He could not recall his memory of approximately 12 hours, which is from after dinner on the plane to 11:00 AM on the next day, even though he looked at the pictures he took. No one with him noted any difference in his demeanor/behavior during the period where he experienced TAA.

(Times indicated are international Greenwich times.)

Morris et al. JAMA 1987; 258: 945-6

Case 2 45-year-old, male neurologist

5:00 PM	**Departure (New York)**
8:00 PM	**Had one glass of wine, took 0.5 mg of triazolam, ate dinner**
1:00 AM	**Landed in Frankfurt**
	Cleared customs and changed planes to go to Munich
	Met with a German research collaborator (neurologist), was taken to the hotel and went out for lunch

He could not recall passing events for approximately 11 hours (from after dinner on the plane to lunch after landing). While he was with his local research collaborators, they did not notice any abnormality in his behavior and action.

His memory came back after 7:00 AM the next day.

(Times: Greenwich Intl times)

Morris et al. JAMA 1987; 258: 945-6

Case 3 33-year-old, female neuroanatomist

4:00 PM	**Departure (New York)**
7:30 PM	**Had one beer, ate dinner, and took 0.5 mg of triazolam**
1:00 AM	**Landed in Frankfurt**
	Took train to Heidelberg
5:00 AM	**Arrived in Heidelberg**

She could not recall passing events for 9 and a half hours (from after dinner to 5:00 AM).

Based on objective records (e.g. passport, air tickets, receipts for money exchanged, she exchanged some money and had breakfast after she had cleared the customs on arrival at Frankfurt. As her baggage was neither on her boarded airplane nor on the next inbound one, she filed in a baggage claim at the baggage service in the airport on arrival at Frankfurt. She then took a train to Heidelberg and arrived on 5:00 AM. However, she could not recall all these events. (Times indicated are Greenwich Intl times.)

Morris et al. JAMA 1987; 258: 945-6

The difference between EtOH-induced blackout and drug-induced TAA from combined use of hypnotics and EtOH

	EtOH only blackout	Hypnotics plus EtOH
Amount	**Large**	**Small**
Appearance	**Very drunk appearance**	**Very normal but lethargic**
Memory	**Lost memory (amnesia)**	**Lost memory (amnesia)**
Evidence	**Blood EtOH concentration**	**Blood drug concentration**
Screening test	**Breathalyzer test ; reliable**	**Immunoassay test kit ; unreliable false negatives (+)**
Reliable analysis	**GC etc.**	**LC/MSMS, GC/MS etc.**

It is known that ethanol is eliminated from the human body within several hours. However, with hypnotics, drug elimination from the human body can take anywhere from several hours to several days depending upon the agents used.

Transient anterograde amnesia (TAA), which can be caused by very large amounts of EtOH, is easily induced with low doses of hypnotic mixed with a small amount of EtOH. With the combined use of hypnotics and EtOH, inhibitory action on the CNS is effected. TAA is potentiated because both substances have the same pharmacological effective action on the $GABA_A$ receptor channel.

As a result, the CNS is inhibited, normal CNS activities are attenuated and suppressed neuronal activities such as sedative, anxiolytic, muscle relaxant, anterograde amnesia and anti-convulsive effects are expressed.

7　Experimental studies.

動物実験

In 1995, we were asked to provide our medical perspective by a prosecutor regarding a particular criminal case.

< A particular criminal case >

After meeting on the street, two males (a rental video shop owner and an office worker) coaxed a female high school student to a karaoke bar, where she unwittingly took a triazolam (0.25 mg) pretreated cocacola prepared by the perpetrators. The victim was stupefied and rendered unconscious after consuming the TZ-pretreated beverage, and the two males sexually assaulted her, and without consent of the victim shot a video of the assault with the intention of selling it on the black market.

At that time, the investigation agency could not understand the phenomenon that the victim had no memory when the crime was committed, even though there was objective proof recorded on a video camera. Said agency then asked our Department of Legal Medicine to confirm the pharmacological effect of BZD, which was used as a date-rape drug in this case.

After our experience in this case, we re-created those symptoms in an experimental animal model, and revealed a neuropharmacological mechanism of anterograde amnesia induced by EtOH combined with TZ which is the BZD used in this case.

Significance of animal experiments

Reliability of the results was established because objective experimental studies were used, and arbitrary manipulations of the results are not possible.

Our questions

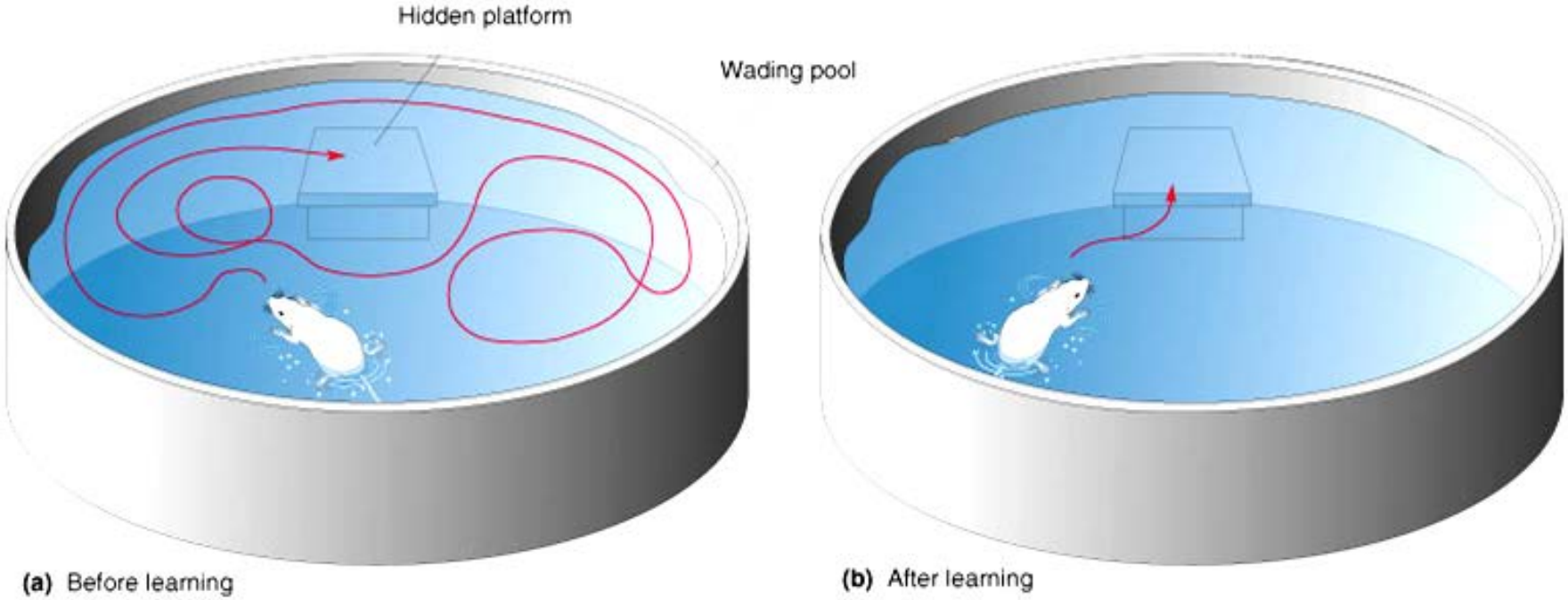
1 Can benzodiazepines (BZD) and ethanol (EtOH) cause memory deficits in an animal model?

2 If affirmative, what is the relevant neurochemical mechanism?

In this animal model, we employed the Morris water-maze test combined with the brain microdialysis technique to verify TAA produced by EtOH combined with BZD.

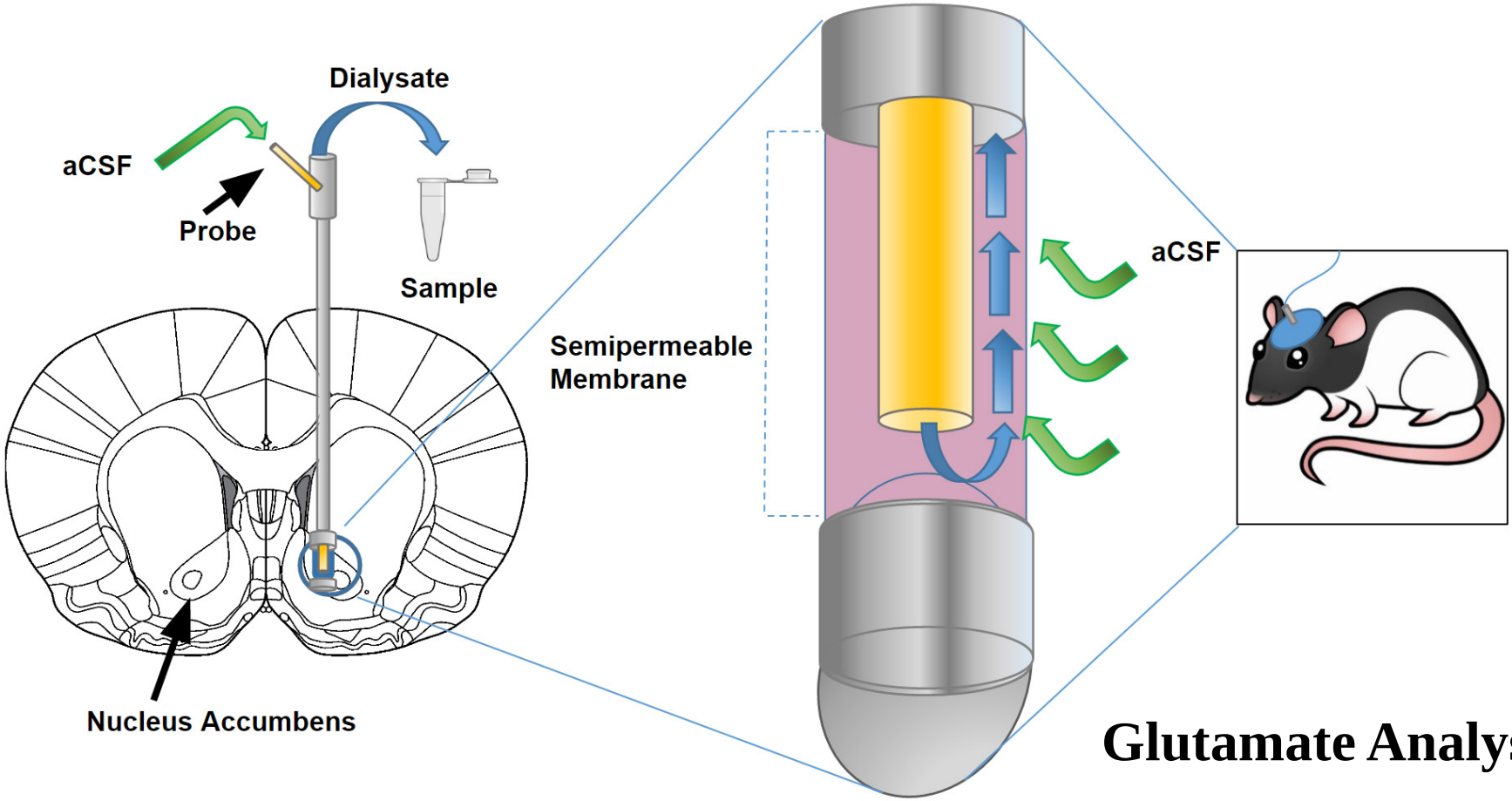
The Morris water maze test

for behavioral pharmacological study



Drug Administration → First trial → Second trial
70 min 4 min

The brain microdialysis technique for neurochemical study

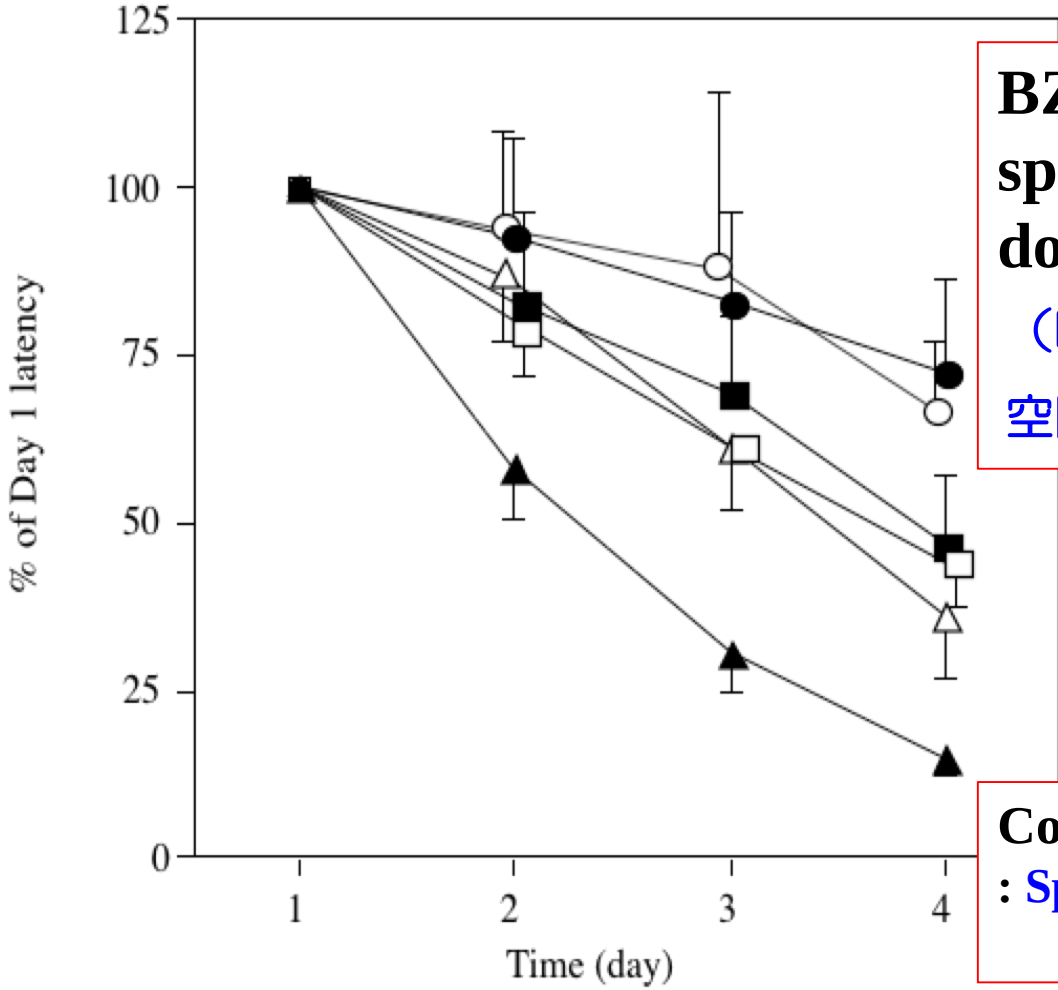


Glutamate Analysis

HPLC / fluorometric detection

Spatial memory deficits in the Morris water maze task

避難台までの到達時間



1日2回、4日間連続試行

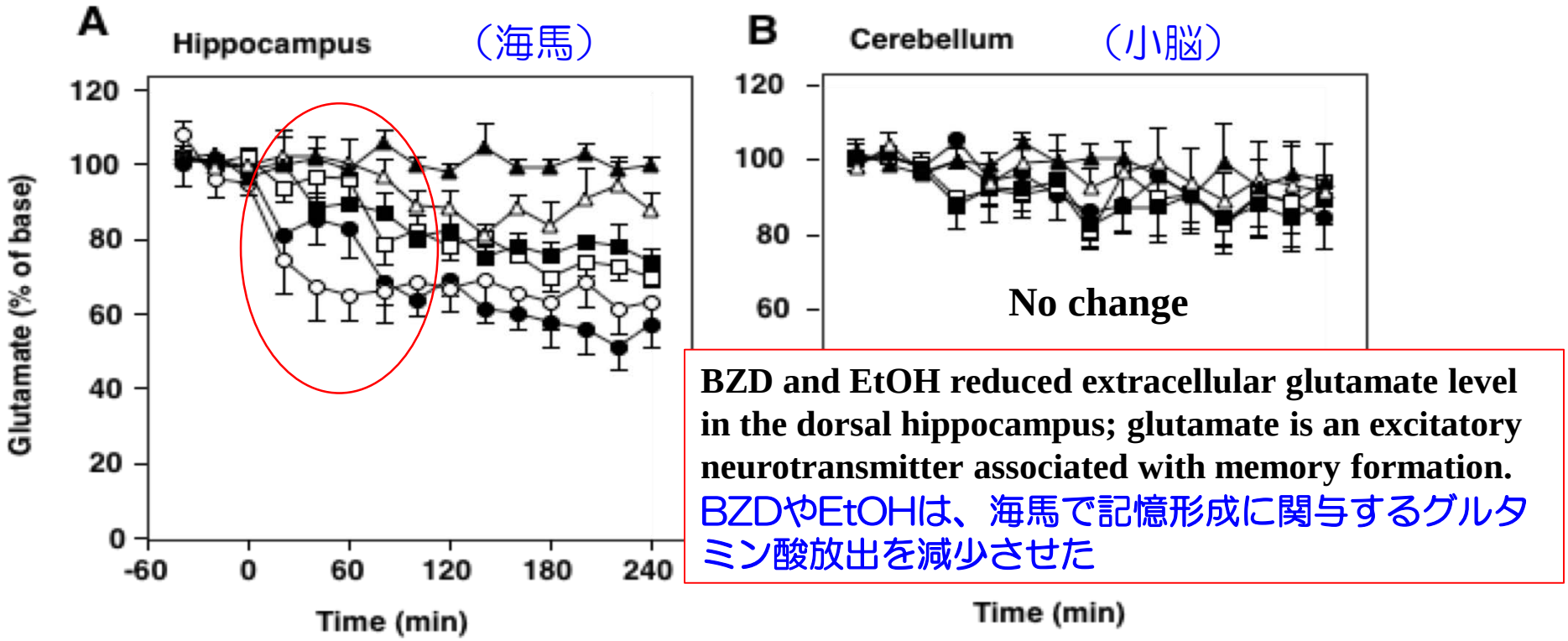
BZD and EtOH induced spatial memory deficits in a dose-dependent manner.

（睡眠薬とアルコールは用量依存的に空間認知記憶障害を生じさせている）

Control group (no drug, no alcohol)
: Spatial learning and memory formation
空間を学習し記憶している

The rats were subjected to 2 trials per day for 4 consecutive days. Each drug was administered 70 min before the first trial on each day. The values are expressed as % of Day 1 latency (means ± S.E.M.); the time to find the platform on the first day was designated as 100% for each animal. ▲: Control (water and 1% carboxymethyl cellulose, n=8), △: rilmazafone hydrochloride (20 μg/kg, n=9), ■: ethanol (2 g/kg, n=8), □: triazolam (20 μg/kg, n=10), ○: triazolam (100 μg/kg, n=8) and ●: triazolam (20 μg/kg, n=8) with ethanol (çn=8).

The time-course of extracellular glutamate levels after BZD or EtOH in the dorsal hippocampus (A) and cerebellum (B) of freely moving rats.

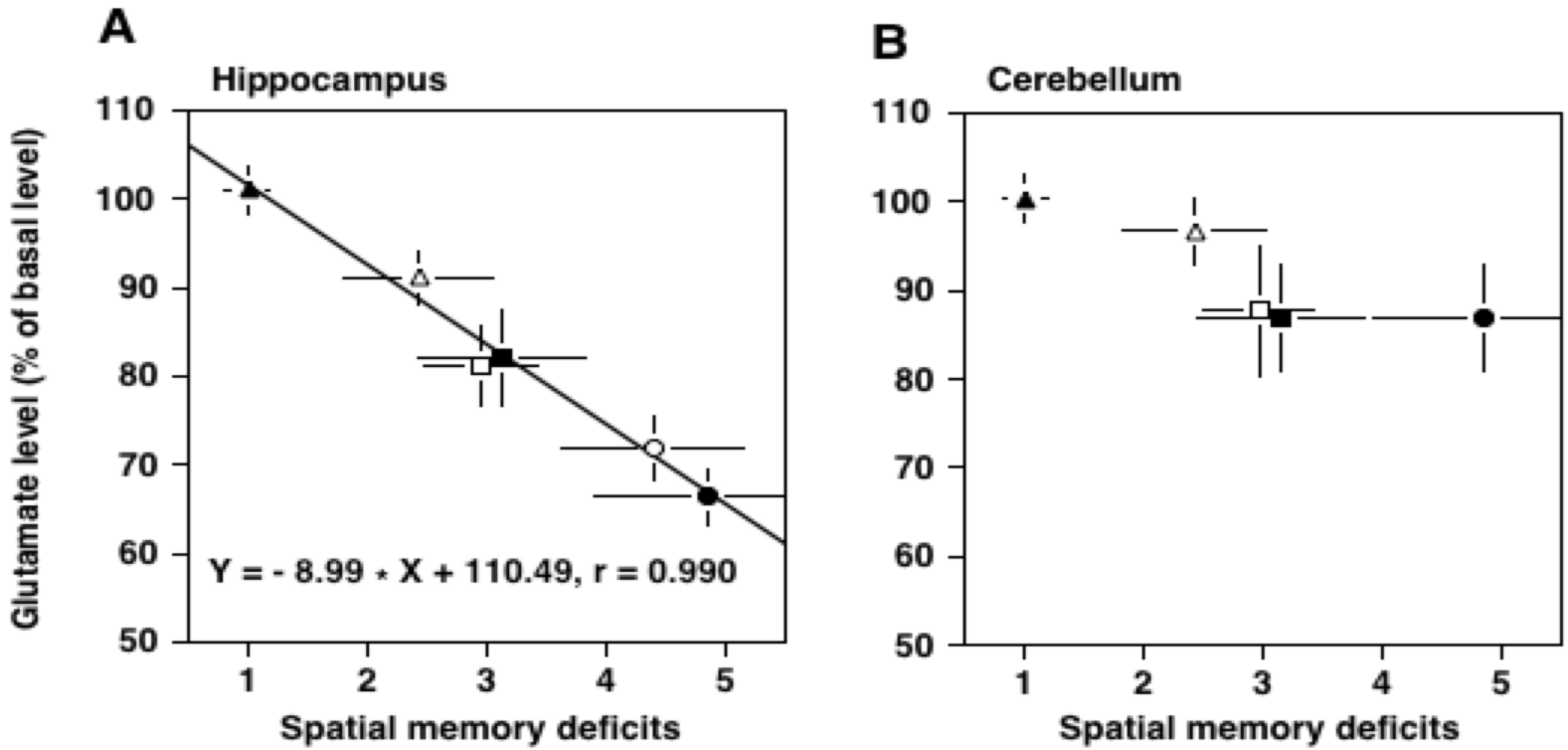


BZD and EtOH reduced extracellular glutamate level in the dorsal hippocampus; glutamate is an excitatory neurotransmitter associated with memory formation.
BZDやEtOHは、海馬で記憶形成に関与するグルタミン酸放出を減少させた

The drug treatments were performed at time 0 min. ▲: Control (water and 1% carboxymethyl cellulose, n=8), △: rilmazafone hydrochloride (20 μg/kg), ■: ethanol (2 g/kg), □: triazolam (20 μg/kg), ○: triazolam (100 μg/kg) and ●: triazolam (20 μg/kg) with ethanol (2 g/kg). The numbers of experimental animals used were 8 to 9 in the hippocampal and 5 to 6 in the cerebellar studies. Data are means ± S.E.M. values, expressed as percentages of the basal.

Relationship between extracellular glutamate release and memory deficits.

The reduction of glutamate neuronal transmission in the dorsal hippocampus is strongly correlated with the extent of spatial memory deficits. 空間認知記憶障害は腹側海馬 Glu 伝達の低下と極めて良く相関 → Glu伝達は海馬での記憶形成において重要



Memory dysfunction was evaluated and plotted as the relative latency (control=1) to find the platform on the last training day (Fig. 1). Glutamate release was expressed as the % of basal output 60 to 120 min after the drug treatment. ▲: Control (water and 1% carboxymethyl cellulose, n=8), △: rilmazafone hydrochloride (20 μg/kg), ■: ethanol (2 g/kg), □: triazolam (20 μg/kg), ○: triazolam (100 μg/kg) and ●: triazolam (20 μg/kg) with ethanol (2 g/kg). Data are means ± S.E.M. values. Note that the decreases in hippocampal glutamate transmission extremely correlated with the extent of impairment of spatial memory performance (r=0.990, Fig.A).

In this study, we demonstrated that the reduction in presynaptic activity of hippocampal glutamate neurons was strongly correlated with the extent of spatial memory deficits, implying that the presynaptic dysfunction would be critical for their impairment in spatial learning and memory.

These above results reveal the triggering mechanism of TAA in humans after the intake of BZO and EtOH combined.

These findings strongly support that claims of TAA due to TZ action by victims are not fabrications or false impressions, but are in fact verified behaviorally, pharmacologically, and neurologically.

Neuroscience 83: 701-6 (Shimizu et al., 1998).

We have subsequently been summoned as witnesses in many criminal trials of similar cases, and have since used the findings from the 1998 study as a reference.

Another question that often queries about the plaintiff's behavior:

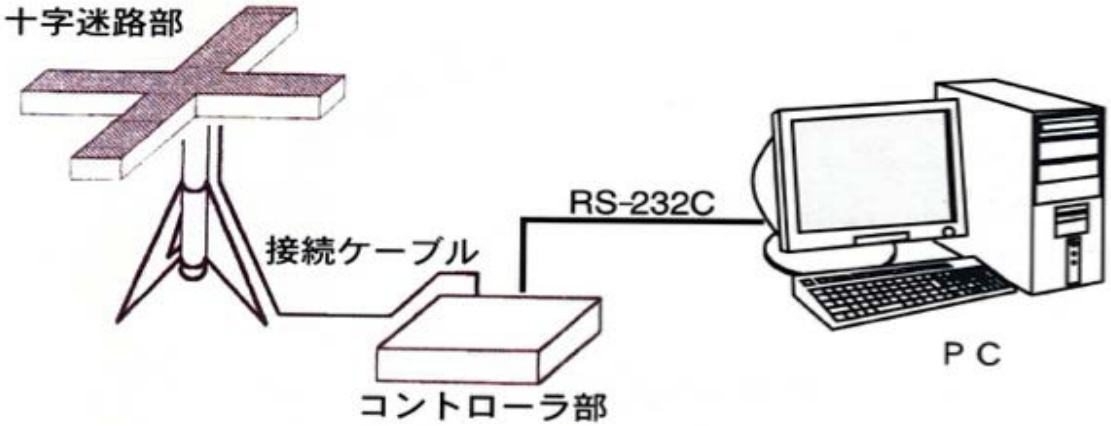
Why was there little of no evidence of the plaintiff attempting to escape from the perpetrators' assaults?

Another reference of a psychoactive effect of BZD receptor agonists using a rodent model has in fact established scientific evidence of a loss of danger avoidance performance, which is often observed in BZD-related DFSAs.

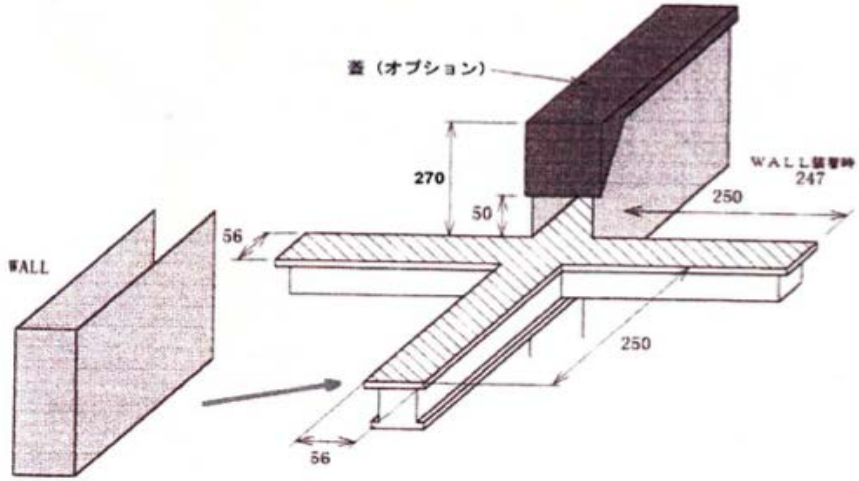
The elevated plus-maze placed test

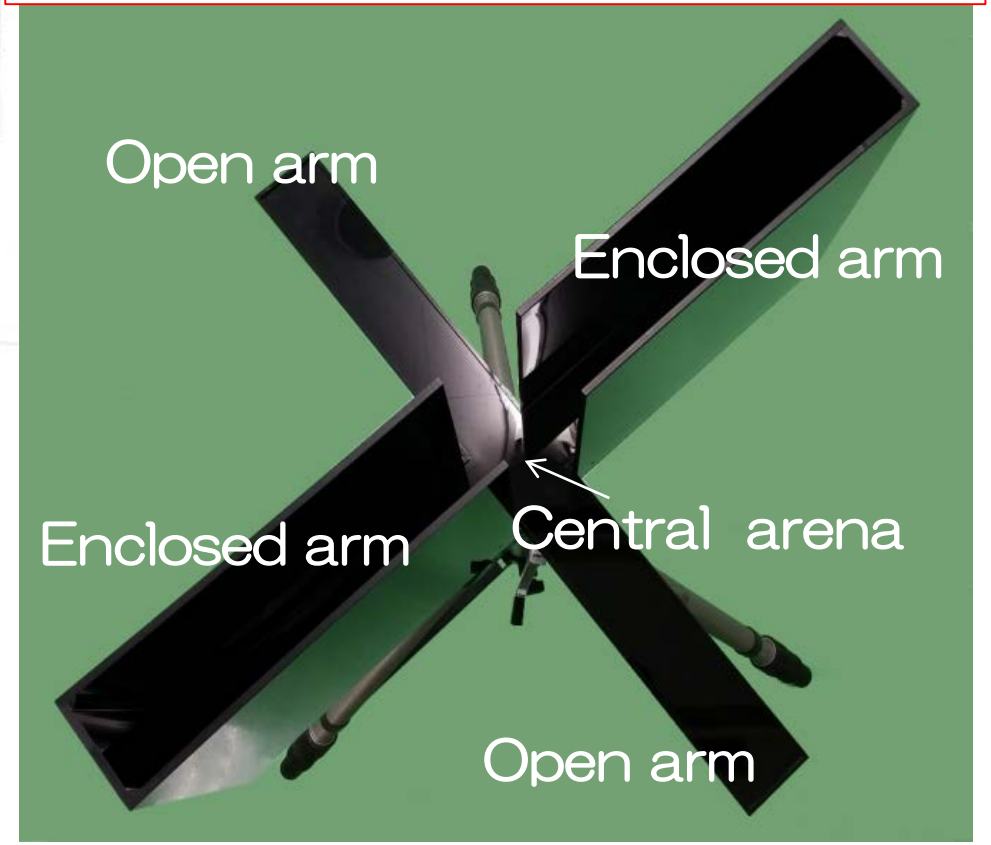
Evaluation of anxiety-related behavior in a crisis situation

Normal mice naturally avoid elevated open places where they sensed danger .

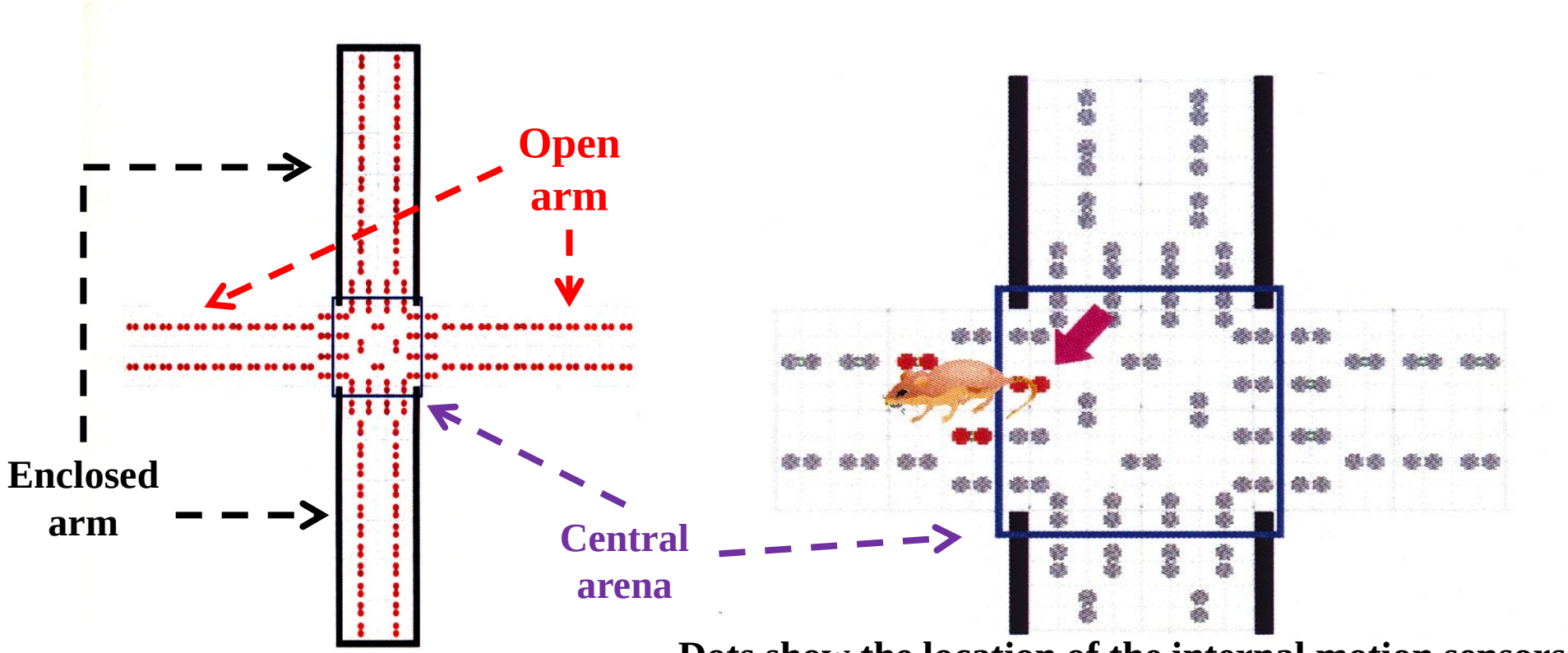


【十字迷路部】





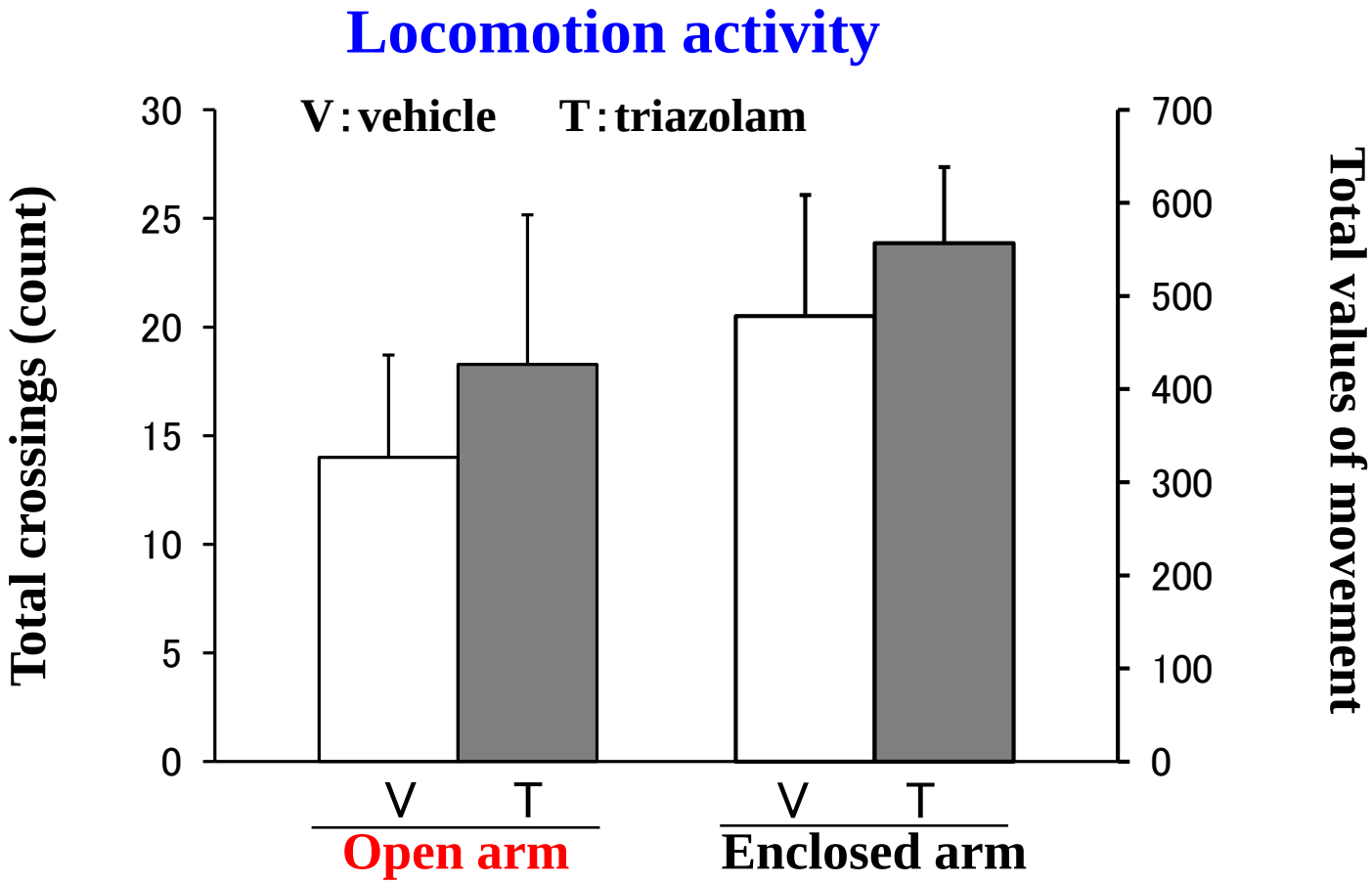
Mice movement was recorded by an instrumentation system with laser sensors equipped with the elevated plus-maze apparatus.



【十字迷路上の反射型ビームセンサー】　　【セントラルアリーナ付近】

ドットは内蔵センサの位置

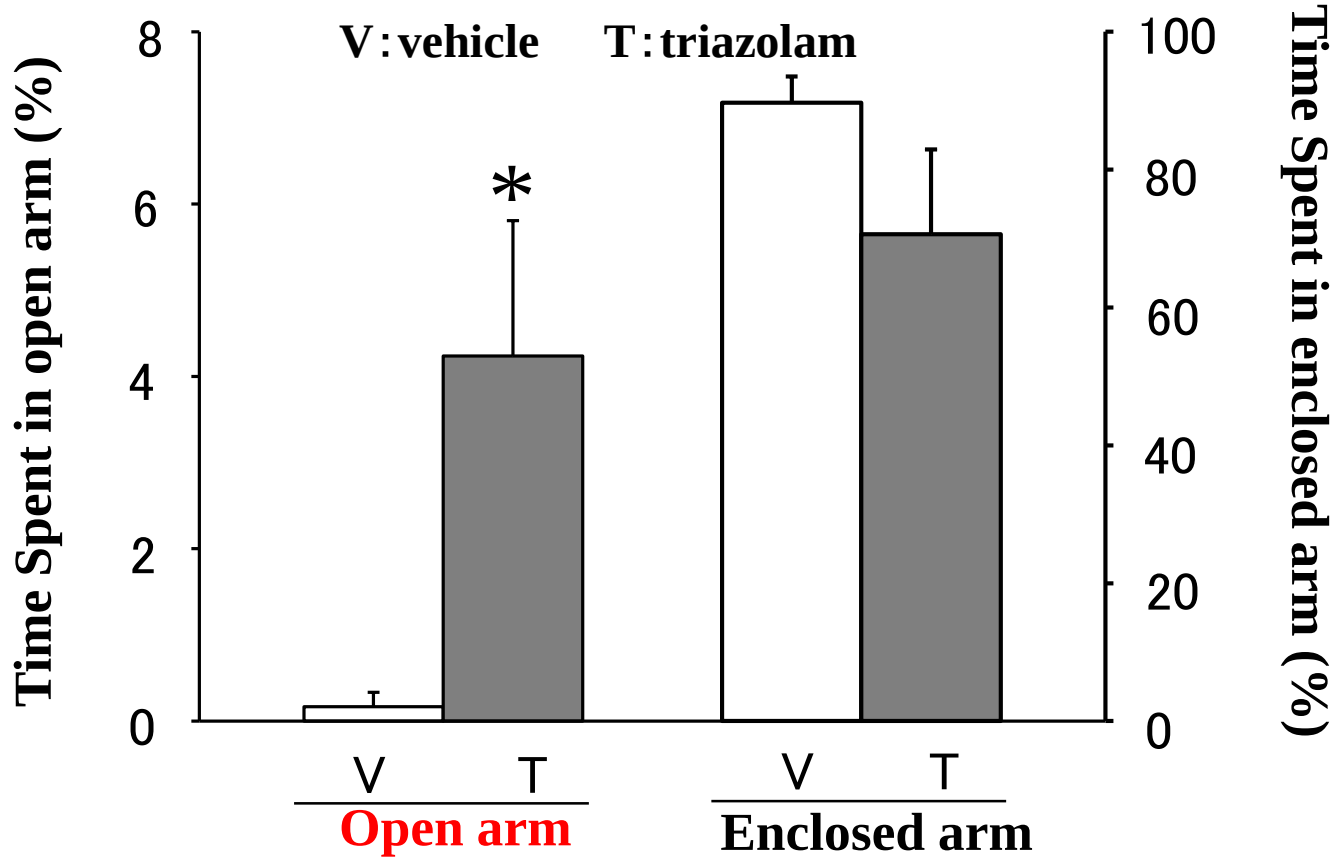
Anxiolytic effect of TZ on behavior in the elevated plus-maze test of mice compared with vehicle (V) use.



Locomotor activities, evaluated by total number of crossings and the total value of movement, were not influenced by the treatment with TZ.

Activities in the open arms, which were evaluated as time spent and the mean value of movement, were affected by treatment with TZ.

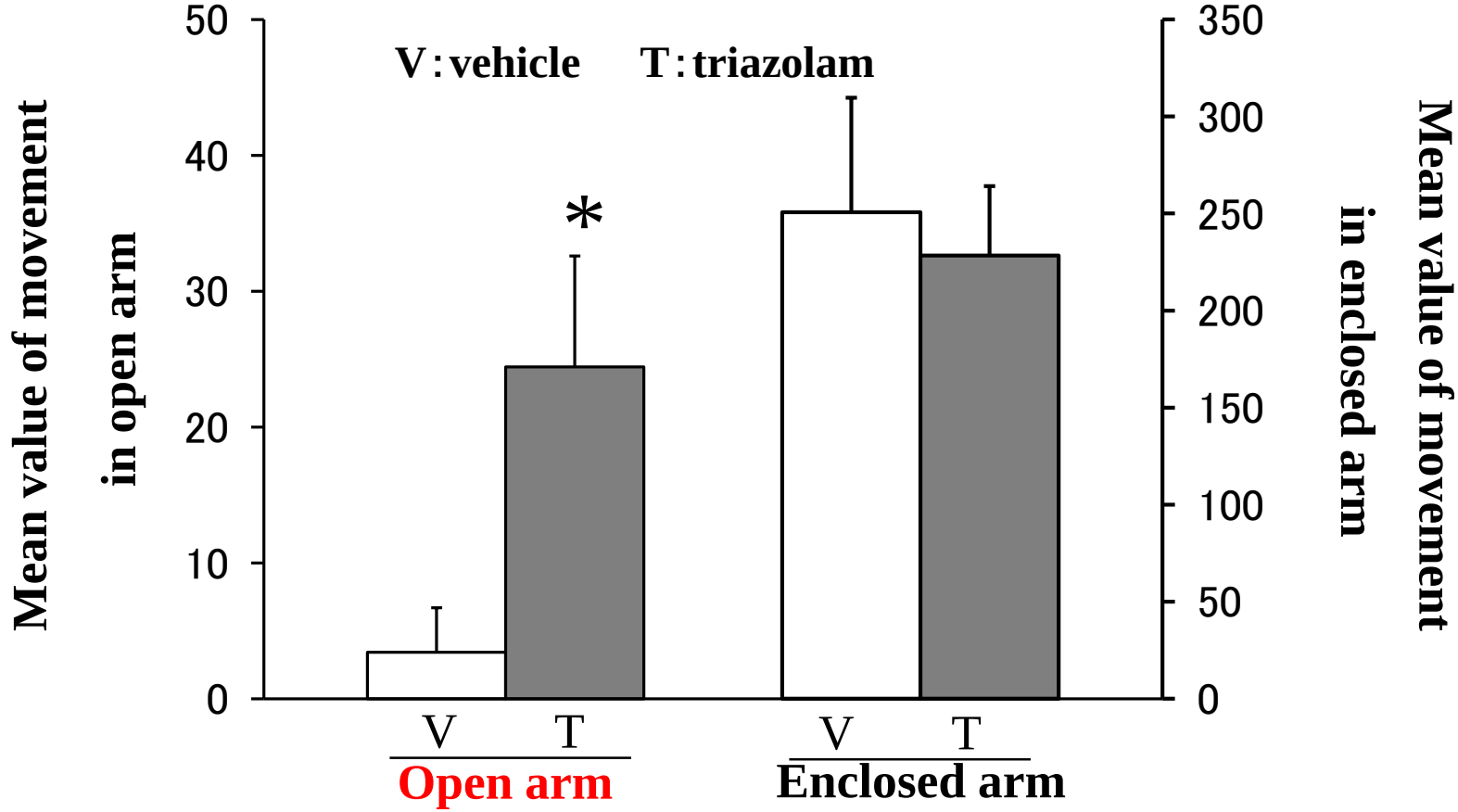
Time spent in each arm



The time spent in the open arms was significantly (P< 0.05) longer in TZ-treated mice than controls.

Activities in the open arms, which were evaluated as the mean value of movement in the open arm , were similarly affected by treatment of TZ.

The mean value of movement in each arm



The mean value of movement in the open arm also markedly (P< 0.05) increased in TZ-treated mice compared with controls.

The number of entries into open arm was slightly increased by TZ treatment, and performance indexes of closed-arm activity were not significantly different between the two groups; that is, the TZ-treated group (0.01 mg/kg in a volume of 10 mL/kg of body weight, intraperitoneally, n = 7) and the control group (with the same route and volume of saline, n = 7).

< Conclusion>

The results of this study clearly showed that animals under the influence of TZ become insensitive to crisis or danger, even though they did not exhibit any reduction in activity levels.

In other words, TZ treatment led the mice to become insensitive to fear and anxiety; their defense reactions were impaired.

We hereby confirm and assert that this finding is scientific evidence in rebuttal to implications of defense counsel arguments in trials that little or no evidence exists of victim attempting to escape from the purported sexual assault.

The avoidance of danger and lack of fight-and-flight responses to crisis which are the natural instincts and response in humans and animals under normal circumstances for survival, is impaired by date-rape drugs, especially BZD receptor agonists.

J Foren Psy 2016; 1(2): available online (Shimizu K et al., 2016).

It will be useful if the present results could be used as reference material in the investigation and prosecution of DFSA cases.

In so doing, this scientific evidence will contribute to the protection of the legal and human rights of DFSA victims.

8 Date rape drugs used in Europe and the U.S.A. and proactive responses to the problem by relevant government agencies.

欧米でDFSAに用いられるデートレイプドラッグ
及び
政府の対策

In general, drugs used in the DFSA (Drug-Facilitated Sexual Assaults) are quickly eliminated from the body, and so the victim must report to police immediately after the incident, and detection samples from the victim must be analyzed promptly to ensure establishing evidence of the crime.

Currently, little is known about the time limit for retrieving drug-intake evidence from the body system in support to prove offense in this type of crime among the Japanese general public, especially the female populace who may most likely to be potential victims of DFSA.

In contrast, the general public in USA and European countries are much more aware of these facts related to DFSA incidents.

In the United States, the number of DFSAs has increased since the late 1990s. Nowadays, appropriate warnings and educational activities for the general public, who might become DFSA victims, are being positively pursued and disseminated by the Federal Government, State Government, educational institutions, civic groups, etc.

Meanwhile in Japan, this type of information-sharing is extremely rare, and we are far behind in adopting preventive strategies by governmental and supportive authorities of Europe and the United States in DFSA.

With lack of said information- and knowledge-sharing, perpetrators are often acquitted as evidence is not forthcoming. This is actually due to ignorance of the victims, as delay in victims reporting to the police will make it difficult to secure objective evidence of the crimes.

Drugs used in DFSA in Western countries, are called "date-rape drugs," or "predator drugs," or "club drugs". These terms are used in daily conversation by ordinary people. Popular dramas from the USA, such as NCIS and CSI, can also be watched in Japan, and these terms are often used on screen.

Always faithful.

In the USA, flunitrazepam (Rohypnol®), ketamine, and gamma-hydroxybutyrate (γ-GHB) are commonly used as date-rape drugs.

Since 1997, Rohypnol® has come under schedule 1 of the CSA and the manufacturing, use and abuse are now prohibited in ways similar to heroin, marijuana and MDMA.

However, in Japan, Rohypnol® is an approved hypnotic medicine, although the tradename of the drug is synonymous with this so-called "Date-rape drug" in the USA.

Therefore, when going to the U.S.A., one is not allowed to carry Rohypnol® along, although hypnotic alternative medications which are not categorized as "date-rape drugs" are legally acceptable.

U.S. Department of Health & Human Services

Womenshealth.gov
Office on Women's Health, U.S. Department of Health and Human Services

OWH OFFICE ON WOMEN'S HEALTH

En Español
Call the OWH HELPLINE: 800-994-9662
9 a.m. – 6 p.m. ET, Monday – Friday

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Home > A-Z Health Topics > Date rape drugs

Date rape drugs
> A-Z Health Topics

Related information
- Sexual assault fact sheet
- Violence against women

Find a Health Center
Near: Location
Enter a city, ZIP code (such as

Date rape drugs

Date rape drugs are illegal and are sometimes used to assist a sexual assault. Sexual assault is any type of sexual activity that a person does not agree to. Date rape drugs often have no color, smell, or taste, so you can't tell if you are being drugged. The drugs can make you weak and confused – or even cause you to pass out – so that you cannot consent to sex. Both men and women can be drugged with date rape drugs.

https://www.womenshealth.gov/a-z-topics/date-rape-drugs

What should I do if I think I've been drugged and raped?

- Get medical care right away. Call 911 or have a trusted friend take you to a hospital emergency room. Don't urinate, douche, bathe, brush your teeth, wash your hands, change clothes, or eat or drink before you go. These things may give evidence of the rape. The hospital will use a "rape kit" to collect evidence.
- Call the police from the hospital. Tell the police exactly what you remember. Be honest about all your activities. Remember, nothing you did — including drinking alcohol or doing drugs — can justify rape.
- Ask the hospital to take a urine (pee) sample that can be used to test for date rape drugs. The drugs leave your system quickly. Rohypnol stays in the body for several hours, and can be detected in the urine up to 72 hours after taking it. GHB leaves the body in 12 hours. Don't urinate before going to the hospital.
- Don't pick up or clean up where you think the assault might have occurred. There could be evidence left behind — such as on a drinking glass or bed sheets.
- Get counseling and treatment. Feelings of shame, guilt, fear, and shock are normal. A counselor can help you work through these emotions and begin the healing process. Calling a crisis center or a hotline is a good place to start. One national hotline is the **National Sexual Assault Hotline at 800-656-HOPE**.

https://www.womenshealth.gov/a-z-topics/date-rape-drugs

Club Drugs

Brief Description

Club drugs tend to be used by teenagers and young adults at bars, nightclubs, concerts, and parties. Club drugs include GHB, Rohypnol®, ketamine, MDMA (Ecstasy), Methamphetamine, and LSD (Acid).

Learn more:

- Commonly Abused Drugs Charts
- Research Report on Hallucinogens and Dissociative Drugs
- Research Report on Methamphetamine
- Research Report on (MDMA) Ecstasy Abuse

https://www.drugabuse.gov/drugs-abuse/club-drugs

Tips for Parents: The Truth About Club Drugs

What Are Raves?

"Raves" are high energy, all-night dances that feature hard pounding techno-music and flashing laser lights. Raves are found in most metropolitan areas and, increasingly, in rural areas throughout the country. The parties are held in permanent dance clubs, abandoned warehouses, open fields, or empty buildings.

Raves are frequently advertised as "alcohol free" parties with hired security personnel. Internet sites often advertise these events as "safe" and "drug free." However, they are dangerously over crowded parties where your child can be exposed to rampant drug use and a high-crime environment. Numerous overdoses are documented at these events.

Raves are one of the most popular venues where club drugs are distributed. Club drugs include MDMA (more commonly known as "Ecstasy"), GHB and Rohypnol (also known as the "date rape" drugs), Ketamine, Methamphetamine (also known as "Meth"), and LSD.

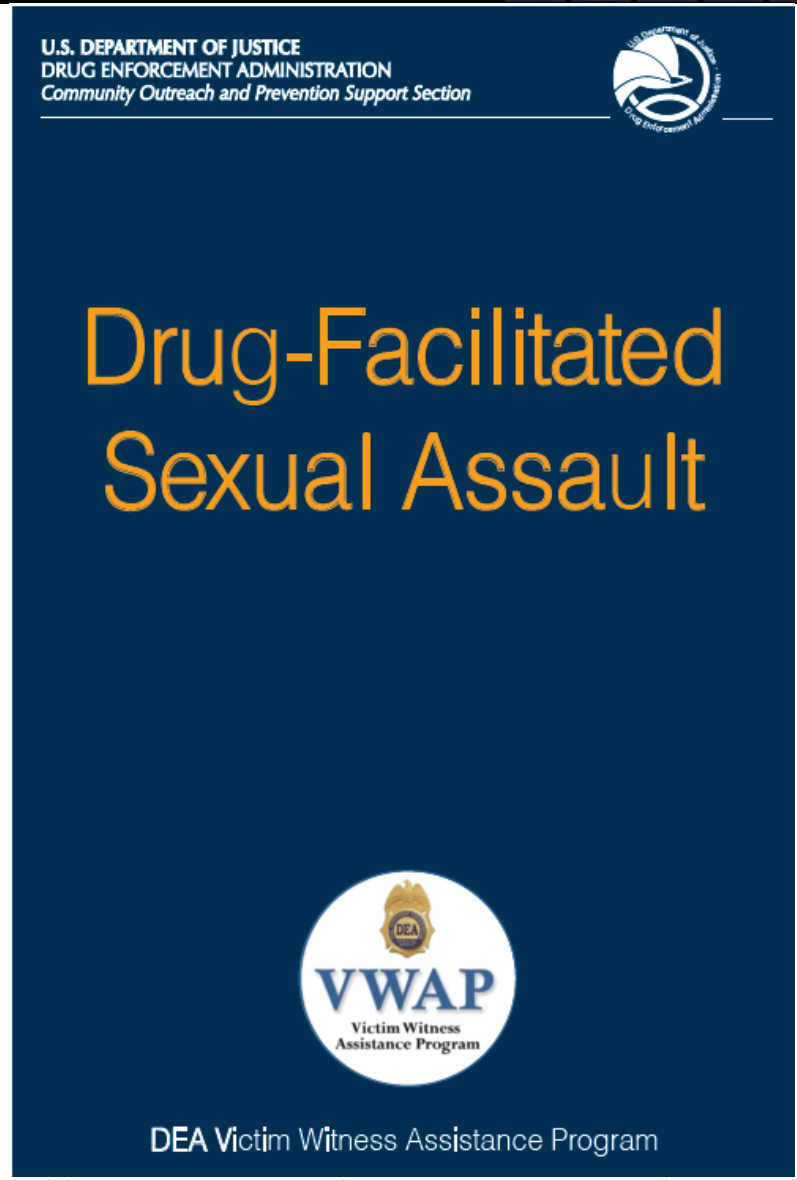
Because some club drugs are colorless, odorless, and tasteless, they can be added without detection to beverages by individuals who want to intoxicate or sedate others in order to commit sexual assaults.

Rave promoters capitalize on the effects of club drugs. Bottled water and sports drinks are sold at Raves, often at inflated prices, to manage hyperthermia and dehydration. Also found are pacifiers to prevent involuntary teeth clenching, menthol nasal inhalers, surgical masks, chemical lights, and neon glow sticks to increase sensory perception and enhance the Rave experience.

Cool down rooms are provided, usually at a cost, as a place to cool off due to increased body temperature of the drug user.

Don't risk your child's health and safety. Ask questions about where he or she is going and see it for yourself.

https://www.fbi.gov/scams-and-safety/protecting-your-kids



https://www.dea.gov/resource-center/DFSA.PDF

9 At the dawn of the gender equality in Japan.

日本での男女共同参画における黎明期

内閣府男女共同参画局
Gender Equality Bureau Cabinet Office

女性に対する暴力の根絶

若年層を対象とした性的な暴力の啓発　女性に対する暴力をなくす運動　「DV相談ナビ」（相談窓口案内サービス）
配偶者からの暴力被害者支援情報　性犯罪・性暴力被害者支援情報　人身取引根絶に向けた広報
「女性に対する暴力」に関する検討・調査　会議　関連サイト　女性に対する暴力根絶のためのシンボルマーク

若年層を対象とした性的な暴力の啓発

いま、10～20代の私たちの身の回りで起きていること！

\いわゆる/
デートレイプドラッグ

飲み物に睡眠薬を入れられ、性暴力の被害にあう。そんな被害が増えています。

詳しくはこちら ▶

\いわゆる/
デートDV

DVなんて興味ないし、関係ない話よ！という人に限って、被害者だったり加害者だったりします。

詳しくはこちら ▶

URL: http://www.gender.go.jp/policy/no_violence/index.html

10 Summary

まとめ

【The issues of using hypnotics for DFSAs】

Hypnotic ($GABA_A$ receptor agonist) drug-induced TAA

- **The loss of victim's memory during DFSA due to being drugged.**
- **The only proof of there being a crime requires objective evidence from the blood test of victims after DFSA.**
- **Because the elimination half-life of the used drug is short, it is absolutely necessary to perform analyses of blood and urine samples from the victims as soon as possible after the crime has occurred.**
- **To achieve this objective, it is essential for the victim to visit the police department and/or a sexual assault victim support center, immediately after the incident has occurred.**

The Necessity of

Public Warnings and Educational Activities

for the General Public in Japan.

Now we stand at the watershed moment of a new era of awareness by the general public in Japan about DFSA, and the opportunity to eliminate this terrible crime.

The time has come for Japan to adopt the policy of providing information about criminal investigation and information about the prevention of DFSA to the public. Apart from information sharing by the community, Japan should learn of the benefits derived from other policies implemented in the West.

Extensive and intensive dissemination of useful DFSA-related information will contribute to building a safe and reliable Japanese society, where crime prevention can be enhanced and social justice can be realized.

Thank you for your kind attention.