Service of Forensic Chemistry and Toxicology

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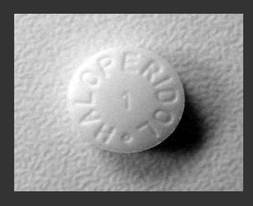
Munchausen by Proxy with Haloperidol: A case report



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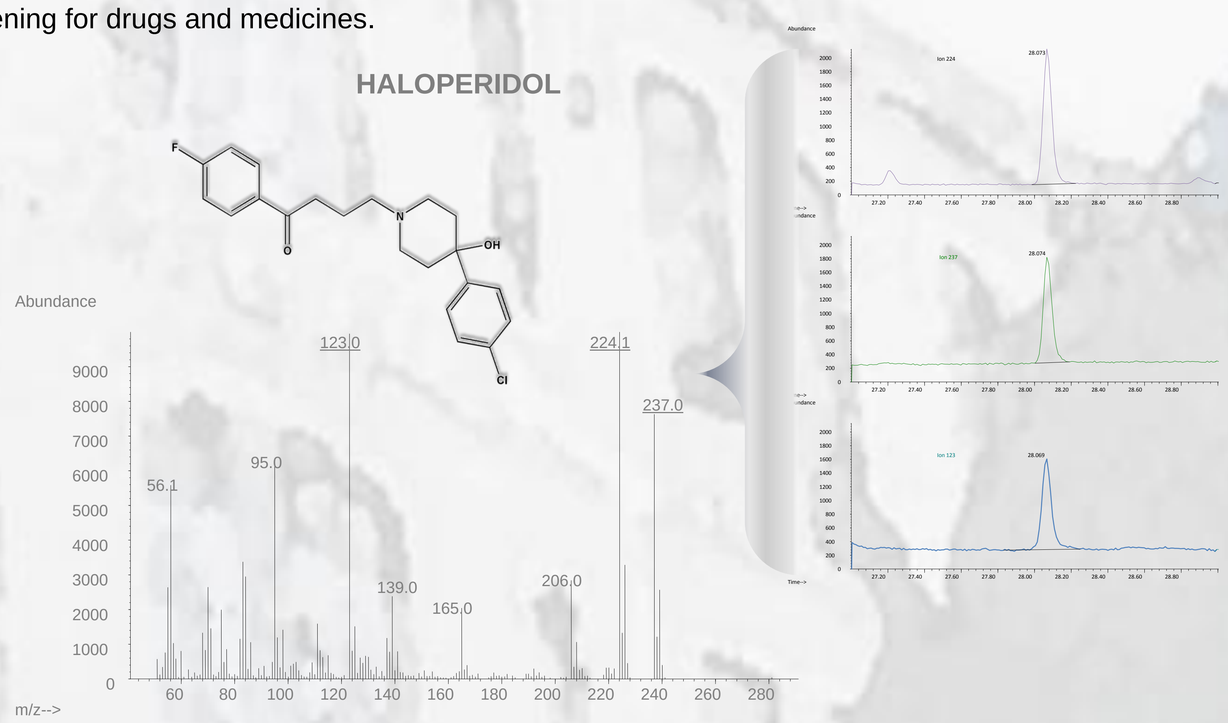
INTRODUCTION

An 8-year-old male child with extrapyramidal symptoms was admitted at 3 pm at the Urgency of Pediatric Hospital. Extrapyramidal syndrome (EPS), sometimes referred to as neuroleptic malignant syndrome, is a neurological side effect of antipsychotic medication characterized by a set of symptoms, that include: hyperpyrexia (an early sign of this syndrome), generalized muscle rigidity, tremors, hypersalivation, altered mental status (including catatonic signs), and evidence of autonomic dysfunction (irregular pulse or blood pressure. This child had previous Hospital admissions with similar symptoms and the possibility of a Munchausen by Proxy Syndrome (MBPS) was considered for evaluation. This syndrome is a form of child abuse in which the carer (usually the mother) simulates, manipulates or produces symptoms of illness in the victim. In most cases the detrimental effect is caused by applying foreign substances, sometimes difficult to detect in the clinical laboratories. Serum and urine samples were collected and a toxicological screening in urine was performed at the hospital by immunoassay revealing positive results for barbiturates and amphetamines. A second urine sample, collected 2 hours later, tested negative to all groups screened. The analytical results didn´t matched with clinical disturbances of the patient and further diagnosis procedures yielded no pathological findings. The serum and urine samples were sent to the Department of Chemistry and Forensic Toxicology of National Institute of Legal Medicine and Forensic Sciences (INMLCF) for an extensive screening for drugs and medicines.

MATERIAL AND METHODS

Serum and urine samples were prepared by solid phase extraction using Oasis® HLB 3cc (60 mg) cartridges and GC-MS analysis was performed using an Agilent HP5973 MSD/6890GC with HP-5MS (30mx0.25mmx0.25mm) capillary column. The injector was set a 280ºC. Injection (1 µl) was made in split mode with 10:1 split ratio. The oven temperature was held at 150ºC for 1 min, increased to 290ºC at a rate of 5ºC/min with a final hold time of 8 min. Data was acquired using selected ion monitoring (SIM) mode with 3 ions for each compound.



HLB® Oasis SPE extraction:

Diluting sample

Conditioning sorbent (methanol/water)

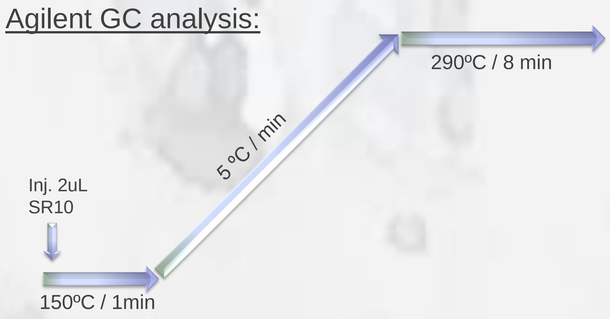
Sample loading

Washing phase (5% methanol)

Drying under vacuum

Eluting analytes (methanol)

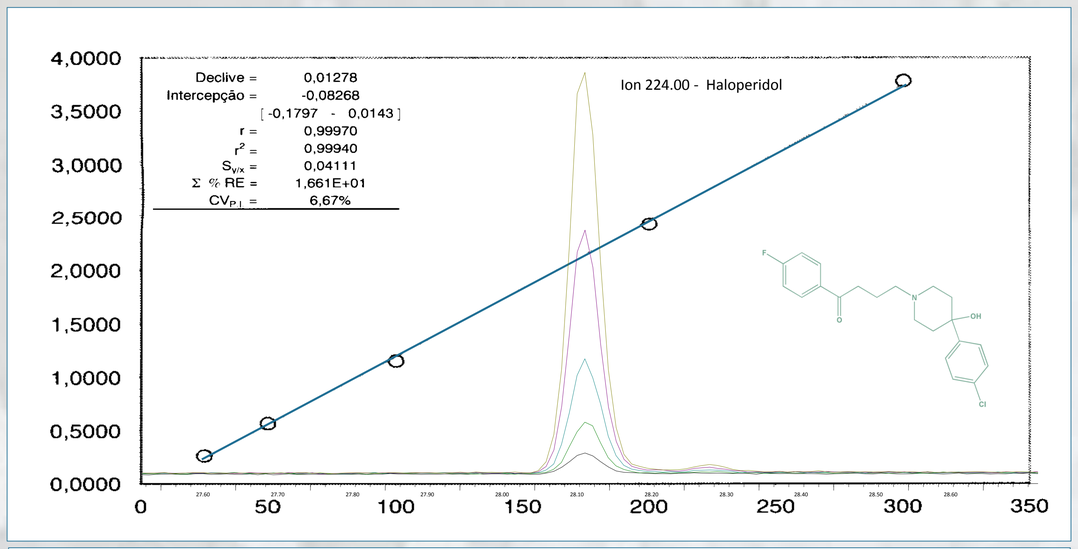
Agilent GC analysis:



Agilent MS analysis:

Haloperidol
TR: 28 min
m/z: 224, 237, 123

ISTD: fentanil
TR: 25 min
m/z: 245



Calibradores	Conc.Teórica ng/ml	Diluição	haloperidol Área	ISTD Área	Razão subst / ISTD	Conc.Calc. ng/ml
CL01.D	25	1	20906	78657	0,2658	27,26
CL02.D	50	1	41063	71949	0,5707	51,11
CL03.D	100	1	81459	70384	1,1574	97,00
CL04.D	200	1	199288	81804	2,4362	197,03
CL05.D	300	1	303638	80200	3,7860	302,61

Controlos	Conc.Teórica ng/ml	Diluição	haloperidol Área	ISTD Área	Razão subst / ISTD	Conc.Calc. ng/ml	Exactidão %
CB1	75	1	79938	94822	0,8430	72,41	-3,5%
CB2	75	1	71743	90181	0,7955	68,70	-8,4%

RESULTS:

Serum and urine samples were positive for Haloperidol, a relatively high-potent antipsychotic agent when compared with other first-generation antipsychotic such chlorpromazine. Haloperidol can induce side effects as hyperpyrexia and movement disorders in children, simulating an illness and leading to clinical or hospital assistance. Sometimes severe extrapyramidal symptoms can occur, even at relatively low dosage.

Controlo 75 ng/mL	Ião	Área	Área relativa	Tolerância	limite inferior	limite superior
1º ião	224	76335	100,0%			
2º ião	237	59880	78,4%	10 abs.	68,4%	88,4%
3º ião	123	52055	68,2%	10 abs.	58,2%	78,2%
4º ião						
haloperidol (t.r.) =	28,07			0,1 abs.	27,969	28,169
fentanil (t.r.) =	24,91	t.r.r. =	1,127	1% rel.	1,116	1,138

Sample: 2nd urine	Ião	Área	Área relativa	Conformidade
1º ião	224	66809	100,0%	conforme
2º ião	237	52154	78,1%	conforme
3º ião	123	46738	70,0%	conforme
4º ião				
haloperidol (t.r.) =	28,07			conforme
fentanil (t.r.) =	24,86	t.r.r. =	1,129	conforme

Samples:	Diluição	haloperidol Área	ISTD Area	Razão subst / ISTD	Conc.Calc. ng/ml
Serum	3,3	2370	40095	0,0591	39,16
1st urine	4,0	193628	30548	6,3385	1574,50
2nd urine	4,0	66809	36533	1,8287	477,47

CONCLUSIONS:

The toxicological results were consistent with the clinical disturbances of the patient and allowed the confirmation of a Munchausen by proxy syndrome. The toxicological report proved to be a critical evidence for the court, confirming the importance of the cooperation between clinical and forensic toxicology laboratories.

References

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