

# FATAL POISONING CAUSED BY FELODIPINE

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## Objective

Felodipine is a calcium-channel blocker of dihydropyridine type similar to nifedipine. This is the first report of a fatality after ingestion of an overdose.

## Case Report

Patient: 33-year-old woman

### Route of exposure and dose:

Ingestion of 600 mg felodipine at an indefinite time before admission

### Time of admission:

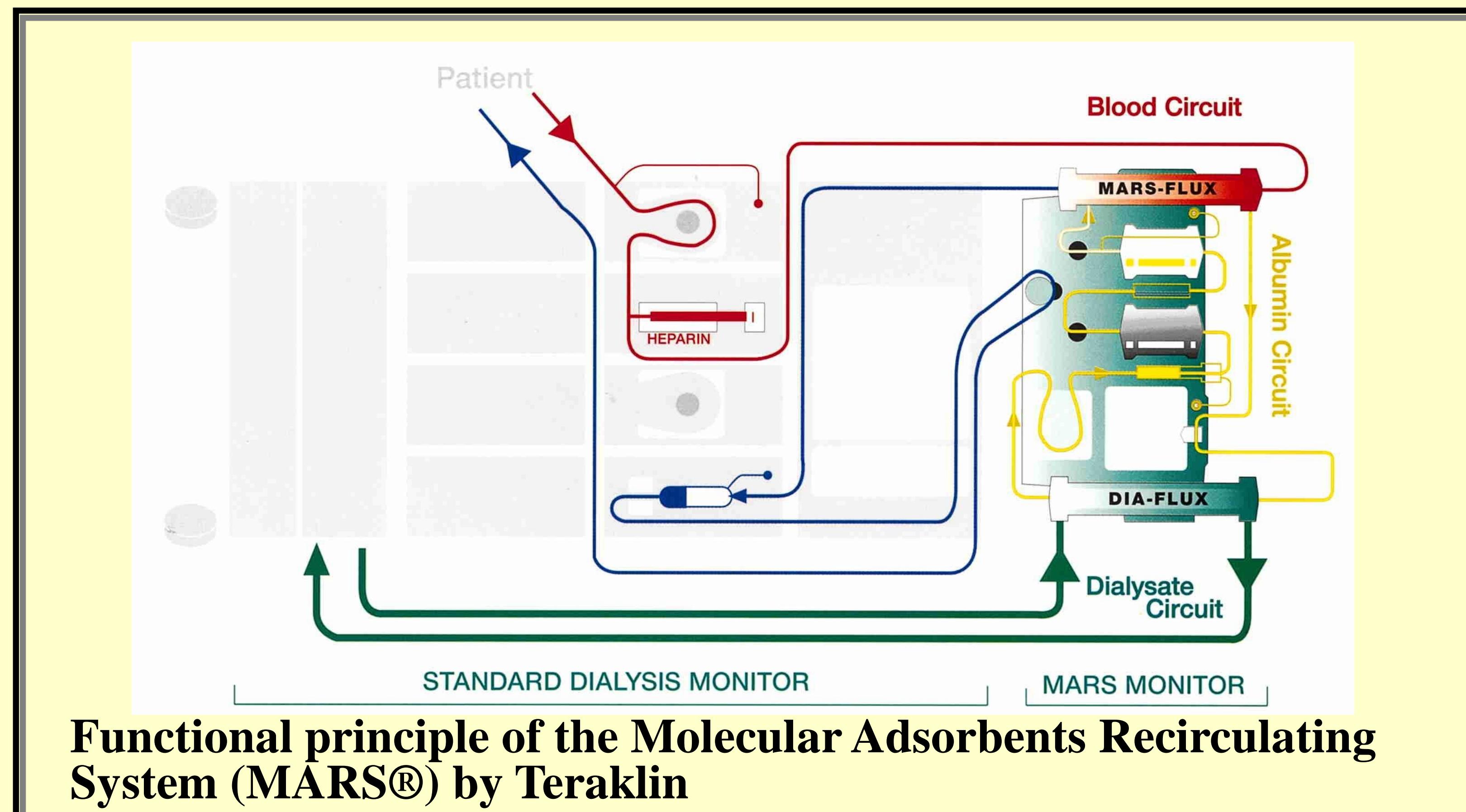
Indefinite time after ingestion

### Clinical features:

- Severe vasoplegic shock with normal left ventricular function already during transfer to the ICU
- Systemic vascular resistance was decreased to 300 dyn.sec.cm<sup>-5</sup> (normal 1000 to 1500), although catecholamines were administered in maximum dose

### Treatment and course:

- Calcium gluconate, glucagon, insulin-glucose, and lipid emulsion were ineffective.
- Albumin dialysis with Molecular Adsorbents Recirculation System (MARS®) was used to remove protein bound felodipine. Actually, the catecholamine supply could be reduced temporarily, but peripheral oxygen utilisation was massively disturbed.
- Lactic acidosis and acute renal failure were treated with continuous venovenous hemofiltration. Despite of all this measures, the critical state of the patient could not be stabilized.
- An abdominal compartment syndrome developed 24 hours after ingestion. A serious compression of mesenteric aortic branches with underperfusion of intestine was recognized by CT angiography.
- Laparoscopy showed a large increase of intraabdominal pressure and gangrenous changes of the whole small intestine.
- The patient died on the following day.



Functional principle of the Molecular Adsorbents Recirculating System (MARS®) by Teraklin



Infusion of LIPID EMULSION has been described to be successfull in a case series of rescue for verapamil-, amlodipine-, and tricyclic antidepressant-induced cardiotoxicity (1) but was ineffective in our presented case.

## Toxicity of felodipine

### THERAPEUTIC DOSE oral

- Adults (2,5)-5-10-(20) mg/d; Children no data available  
MDD 3 x 15 mg/d  
30 to 75 mg per day

### TOXIC DOSE oral

- Adults felodipine 50 mg/d over 2 days without any symptoms coingestions of felodipine 100 mg and theophylline 9 g with severe hypotension, tachycardia, circulatory insufficiency and paralytic ileus (2)

Children no data available

## Conclusions

- Massive overdose of felodipine caused exclusively a long-lasting peripheral vasodilatation resistant against all appropriated therapeutic measures.
- This vasoplegic syndrome corresponds to the felodipine half-life (11 to 16 hours after single dose; 22 to 27 hours after repeated dose) (3).
- No cardiotoxic effects occurred in our case as well as reported (2) confirming the high selective binding of felodipine to voltage-dependent calcium channels of vascular smooth muscle cell membranes also in life-threatening poisoning.
- The possibility to opening of calcium channels by use of 4-aminopyridine (4-AP) infusion was not available (2).

## References

1. Geib AJ, Manini A, Liebelt E. Case Series of Intravenous Lipid Emulsion Rescue for Drug Cardiotoxicity. Clinical Toxicology 2009;47:704 [Abstract 10 NACCT 2009]
2. Magdalan J, Kochman K, Smolarek M, Przewłocki M, Antończyk A. Severe felodipine and theophylline poisoning successfully treated by 4-aminopyridine: a case report Przegl Lek. 2003;60:268-270.
3. DRUGDEX DRUG EVALUATIONS, Felodipin, Vol. 143 expires 3/2010