

# VIVOTERRA®



## Death penalty - what's really in the lethal injections

The USA is one of 25 countries worldwide in which the death penalty was last carried out. It can still be used in 32 states, but not all of them make use of this right. The main method of execution is the so-called lethal injection - in most states a lethal “cocktail” of three active substances. However, in recent years, more and more companies have stopped supplying the required active ingredients to US authorities.

Most recently the company Pfizer. The EU has been restricting the export of substances for these poison cocktails since 2011. This primarily concerns sodium thiopental. The substance can be found alongside other barbiturates on the EU's so-called anti-torture list, which prohibits the export of certain substances for torture and executions, among other things. The US authorities can now hardly legally obtain the substances for their lethal injections.

In most cases, a triple combination of a narcotic, a muscle relaxant and potassium chloride, administered one after the other, is used.

### **Barbiturates as anesthetics**

In the first step, a narcotic is used to render the death row inmate unconscious. The dose is often so high that it can be fatal on its own. Some countries only administer this injection.

Barbiturates are usually used here, especially thiopental. Like all barbiturates, it works by activating the inhibitory GABAA receptors in the central nervous system. At low doses, barbiturates merely prolong the binding of the natural ligand,  $\gamma$ -aminobutyric acid (GABA); at higher doses, they also activate the chloride channel themselves. As a result, the excitability of the respective cell is reduced. The effect is dose-dependent, ranging from sedative to hypnotic to narcotic.

The effect of thiopental is rapid, but only lasts for a short time (5 to 15 minutes). In anesthesia, thiopental is therefore used as an alternative to propofol for induction of anesthesia. The short duration of action has repeatedly led to discussions about the painlessness of the lethal injection. Critics complain that the condemned person may regain consciousness and suffocate in agony from the second component of the lethal mixture, the muscle relaxant. The longer-acting pentobarbital is therefore used to euthanize animals. Since thiopental can no longer be supplied from Europe for executions, US authorities have increasingly resorted to the related pentobarbital in recent years. The medium-acting barbiturate, which was previously used as a sedative, is no longer used in human medicine. However, it is used by euthanasia organizations. However, manufacturers no longer supply pentobarbital to US prisons either.

### **Experimenting due to supply bottlenecks**

Propofol is a possible alternative to barbiturates. This drug, which is frequently used in human medicine due to its good controllability, also works by activating GABA receptors. But here, too, there are supply problems. When US authorities announced their intention to increase the use of propofol for their executions in future due to the shortage of barbiturates, the German manufacturer Fresenius restricted US exports of the substance. The inclusion of Propofol in the anti-torture list has also been under discussion for some time.

In order to continue to carry out death sentences, the US authorities are experimenting with poison cocktails, for example with the benzodiazepine midazolam and the opioid hydromorphone. Sometimes with dire consequences. In 2014, the case of Joseph Wood, whose death struggle with this mixture is said to have lasted almost two hours, was reported in the media. Prior to this, there had already been two executions in other federal states in the same year that lasted significantly longer than planned.

### **Muscle relaxants, the second component**

The second component of the lethal injection, as the lethal injection is officially called, is a muscle relaxant. The substances paralyze not only the skeletal muscles but also the respiratory muscles. If the convict is conscious, he suffocates in agony. Non-depolarizing muscle relaxants such as pancuronium, vecuronium and tubocurarine as well as suxamethonium, which is a depolarizing substance, are used here. The former are competitive antagonists, i.e.

they compete with the natural ligand acetylcholine for the nicotinic acetylcholine receptors of the postsynaptic membrane and thus prevent their activation. This results in muscle relaxation. They themselves have no intrinsic effect. Suxamethonium, on the other hand, acts as an agonist on the acetylcholine receptors of the motor end plate. The substance causes permanent depolarization, which also leads to muscle paralysis. In contrast to the non-depolarizing muscle relaxants, the effect of suxamethonium cannot be reversed by cholinesterase inhibitors such as neostigmine.

### **Finally, potassium chloride**

Component number three is potassium chloride. High doses lead to cardiac arrest, as extracellular potassium levels above 10 mmol/l reverse the membrane potential. It is then strongly positive. The cell can no longer repolarize after an action potential. In forensic medicine, potassium chloride poisoning is difficult to prove. This is because the extracellular potassium concentration rises due to the decay of the cells after death.

### **Pure morality, mockery and derision**

... But the doctors in the USA are not allowed to pull the lever with the lethal injection, they have sworn to help - never to harm.

It is not the “doctors” who pull the “lever” or open the valve to the lethal injection - prepared by “doctors”. By the way, is there no way to kill a person humanely and quickly? Yes, there are many possibilities. Why isn't that done? Because it is not wanted. Why do you first let a person - often innocent - (murderer) stew on death row for 25 years, often in solitary confinement (torture), and then kill him slowly after 25 years (torture) ... Why do you kill people slowly (torture)? It is deliberate. They don't want to kill these people quickly. Countless people sentenced to death were and still are innocently executed - another word for murder.

### **This is pure morality, mockery and derision**

In Saudi Arabia, it is “doctors” who amputate the convicts' limbs in stages.

And it is “doctors” who supervise the floggings and determine in which stages the 1,000 lashes “may” be administered so that the condemned person does not die too quickly. Or does not die at all and then has to live with these physical and psychological scars. That is also the intention.

**Why do you think leftists all over the world make such ultimate demands? The monopoly of power must be exclusively with the “state” - with the rulers.**