Poisoning: Murder most foul

NERVE AGENT: NOVICHOK
Disrupts signalling along the nervous system, in the same way as other nerve agents such as sarin and VX

UNDER NORMAL CIRCUMSTANCES
1. The brain sends impulses to muscles along the nervous system
2. The message is carried from nerve cell to the receiving muscle via the neurotransmitter acetylcholine
3. The impulse reaches muscle, the job is done

WHAT IS NOVICHOK
- Developed by the Soviet Union in the 1970s and 1980s
- Reportedly developed to circumvent the chemical weapons ban by relying on novel chemical structures
- Can be in the form of an ultra-fine powder
- Reported to be five to eight times more lethal than VX

UNDER A NERVE AGENT ATTACK
- Cholinesterase is inhibited
- Acetylcholine continues to send impulses to muscles
  - The body is thrown into overstimulation, suffers adverse reactions

MAIN SYMPTOMS
- Pinpoint pupils
- Salivation
- Convulsions
- Paralysis
- Spasms
- Heart failure

FIVE HIGH-PROFILE CASES OF POISONING

<table>
<thead>
<tr>
<th>Poison</th>
<th>Method</th>
<th>Victim</th>
<th>Fate</th>
<th>What happened?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ricin</strong></td>
<td>Injection</td>
<td>Georgi Markov</td>
<td>Died three days later</td>
<td>Believed to have been killed by a poisoned dart filled with ricin fired from an umbrella as he waited for a bus in London.</td>
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<tr>
<td><strong>Fentanyl</strong></td>
<td>Spray or injection*</td>
<td>Khaled Mashaal</td>
<td>Saved by the antidote</td>
<td>Attacked in Jordan by Israeli secret service agents, who injected a mysterious poison into his ear. Jordan's King Hussein demanded that Israel hand over an antidote.</td>
</tr>
<tr>
<td><strong>Dioxin</strong></td>
<td>Orally</td>
<td>Viktor Yushchenko</td>
<td>Survived, but with scars on his face</td>
<td>Fell ill in the middle of a presidential campaign against Moscow's preferred candidate. He was elected to office in January 2005.</td>
</tr>
<tr>
<td><strong>Polonium 210</strong></td>
<td>A built-in mechanism firing a pellet containing the poison</td>
<td>Alexander Litvinenko</td>
<td>Died in hospital three weeks later</td>
<td>Took tea with another former Russian agent in London. Started to feel pain on his way home. Moscow refused to extradite the main suspect.</td>
</tr>
<tr>
<td><strong>VX</strong></td>
<td>Substance thrown in the face</td>
<td>Kim Jong Nam</td>
<td>Died before he reached hospital</td>
<td>Attacked at Kuala Lumpur airport by two women who were captured on CCTV shoving something into his face. Suffered violent headache followed by a seizure.</td>
</tr>
</tbody>
</table>

Sources: REUTERS, AGENCIE FRANCE-PRESSE
PHOTOS: EPA-EFE
SUNDAY TIMES GRAPHICS