Supplementaire bijlage literatuurstudie opwindingsdelier.

Inhoudsopgave:

1. Belangrijke bronnen van het medisch-wetenschappelijke en maatschappelijke debat (p2-3)
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9. Belangrijke bronnen van het medisch-wetenschappelijke en maatschappelijke debat

2017

* Onderzoek van Reuters naar de financiële banden tussen prominente opwindingsdelier-onderzoekers en fabrikanten van stroomstootwapens en politie-afdelingen (<https://www.reuters.com/article/us-usa-taser-experts-specialreport-idUSKCN1B417N>).
* Media uitzending met interview met hoogleraren intensive care geneeskunde over het overlijden van Mitch Henriquez en het bestaan van het acute stress-syndroom (<https://www.vpro.nl/argos/media/afleveringen/2017/Waaraan-overleed-Mitch-Henriquez-.html>).

2018

* Onderzoek naar de oververtegenwoordiging van GGZ-patiënten onder slachtoffers van dodelijk politiegeweld in de Verenigde Staten (Saleh AZ, Appelbaum PS, LiuX e.a. Deaths of people with mental illness during interactions with law enforcement Int J Law Psychiatry 2018 May-Jun;58:110-116. PMID 29853001).

2020

* American Psychiatric Association (APA) neemt afstand van het gebruik van de term opwindingsdelier (<https://www.psychiatry.org/getattachment/7769e617-ee6a-4a89-829f-4fc71d831ce0/Position-Use-of-Term-Excited-Delirium.pdf>).
* Uitzending van ’60 minutes’ van CBS News over het misbruik van het opwindingsdelier om doodslag door politie te verdoezelen (<https://www.cbsnews.com/news/excited-delirium-police-custody-george-floyd-60-minutes-2020-12-13/>).
* Nederlands onderzoek van een samenwerking tussen Investico, De Groene Amsterdammer en Trouw waarin politieagenten geïnterviewd worden over hun ervaring met de omgang met verwarde personen (<https://www.trouw.nl/binnenland/agenten-voelen-zich-gedwongen-tot-geweld-tegen-mensen-in-psychische-nood~b2dc5d1b/> en <https://www.groene.nl/artikel/niet-gek-genoeg>).
* Onderzoek van organisatie Controle Alt Delete waarin uit publieke bronnen informatie wordt bijgehouden van personen die komen te overlijden tijdens of na politiegeweld, en hoe vaak er hierin sprake is van verward gedrag (<https://pointer.kro-ncrv.nl/aantal-doden-bij-politie-ingrijpen-in-2020-bijna-verdubbeld-merendeel-vertoonde-verward-gedrag> en <https://controlealtdelete.nl/dossier-politiedoden>).

2021

* Onderzoek van New York Times naar financiële banden tussen experts over opwindingsdelier die als getuige optreden voor politie-afdelingen na overlijden van personen door een mogelijk opwindingsdelier (<https://www.nytimes.com/2021/12/26/us/police-deaths-in-custody-blame.html>).
* Kritisch artikel in het British Medical Journal of het gebrek aan wetenschappelijk bewijs voor de diagnose opwindingsdelier (Rimmer A, Excited delirium: what’s the evidence for its use in medicine? BMJ 2021;373:n1156. PMID 33952574).
* Position-statement van de American Medical Association waarin afstand wordt genomen van het opwindingsdelier en wordt aangekaart dat het misbruikt wordt bij o.a. minderheden (<https://www.ama-assn.org/press-center/press-releases/new-ama-policy-opposes-excited-delirium-diagnosis>).

2022

* Opinie in de Lancet waarin wordt gepleit om het gebruik van opwindingsdelier als doodsoorzaak af te schaffen (Saadi A, Naples-Mitchell J, da Silva Bhatia B e.a. End the use of “excited delirium” as a cause of death in police custody Lancet 2022 Mar 12;399(10329):1028-1030. PMID 35247310).
* Uitgebreid onderzoek van ‘Physicians for Human Rights’ waarin de wetenschappelijke basis van het opwindingsdelier wordt bekritiseerd (<https://phr.org/our-work/resources/excited-delirium>).
* Nederlands onderzoek van dodelijk politiegeweld door Bureau Beke waarin wordt aangetoond dat veel van de personen die komen te overlijden in beeld komen als ‘verward persoon.’ Ook het opwindingsdelier wordt genoemd bij doodsoorzaken (<https://bureaubeke.nl/wp-content/uploads/2022/02/Download_Bekereeks_Fatale_politie_incidenten.pdf>).

1. Epidemiologische data

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1e auteur | Jaar | Context | Land | Periode | Incidentie EDS | N (EDS/totaal) |
| Stratton | 2001 | SEH | VS | ’93-‘96 | 0.02% van de ALS ambulanceritten | 188/785.020 |
| Das | 2009 | Forensisch | NL | ’00-‘04 | 5 gevallen in politiecellen in Amsterdam in een periode van 4 jaar | 5/- |
| Strote | 2010 | SEH | VS | ’01-‘06 | 0.4% van personen die getaserd werden door politie | 4/1101 |
| Hall | 2013 | Politie | Canada | ’06-‘09 | 2.9% van personen die met geweld gearresteerd werden | 37/1269 |
| Strote | 2014 | Politie | VS | ‘08-‘11 | 0.004 per 100.000 burgers per jaar | 66/608.600 |
| Hall | 2015 | Politie | Canada | ’06-13 | 2.0% van personen die met geweld gearresteerd werden | 86/4373 |
| Baldwin | 2016 | Politie | Canada | ’12-‘13 | 1.5% van personen die met geweld gearresteerd werden | 73/4799 |
| Baldwin | 2018 | Politie | Canada | ’12-‘15 | 1.7% van personen die met geweld gearresteerd werden | 156/9006 |
| Mo | 2020 | SEH | VS | ’17-‘18 | 0.06% van SEH-patiënten | 37/570.000 |

EDS = Excited Delirium Syndrome (opwindsingsdelier)

1. Patiëntkarakteristieken

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1e auteur | Jaar | N | Leeftijd (gemiddeld) | Leeftijd (range) | Geslacht (% man) |
| Wetli | 1985 | 7 | 29 | 24-37 | 86% |
| O'Halloran | 1993 | 11 | - | 14-44 | 100% |
| Stratton | 1995 | 2 | 33 | 30-35 | 100% |
| Ruttenber | 1997 | 58 | 31 | - | 93% |
| Ross | 1998 | 61 | 32 | 16-44 | 97% |
| Pollanen | 1998 | 21 | 33 | - | 95% |
| Hick | 1999 | 5 | - | 30-39 | 100% |
| Blaho | 2000 | 2 | 28 | 22-33 | 100% |
| Allam | 2001 | 1 | 25 | 25 | 100% |
| Morrison | 2001 | 1 | 25 | 25 | 100% |
| Stratton | 2001 | 18 | 32 | 24-44 | - |
| Mash | 2002 | 8 | 35 | - | 88% |
| Mash | 2003 | 8 | 32 | - | 100% |
| Pestaner | 2003 | 2 | 32 | 31-33 | 100% |
| Channa Perera | 2007 | 1 | 37 | 37 | 100% |
| Bunai | 2008 | 1 | 39 | 39 | 100% |
| Mash | 2009 | 90 | 34 | - | 91% |
| Grant | 2009 | 62 | 38 | - | 94% |
| Das | 2009 | 3 | 32 | 30-33 | 100% |
| Paterson | 2009 | 3 | 29 | 27-32 | 100% |
| Kiely | 2009 | 1 | 49 | 49 | 100% |
| Samuel | 2009 | 1 | 34 | 34 | 100% |
| Strote | 2010 | 4 | 38 | 32-42 | 100% |
| Lucena | 2010 | 3 | 36 | 26-43 | 100% |
| Lusthof | 2011 | 1 | 36 | 36 | 100% |
| Le Cong | 2012 | 18 | - | 12-43 | - |
| Burnett | 2012 | 13 | - | 24-61 | 62% |
| Penders | 2012 | 3 | 29 | 26-31 | 100% |
| Kodikara | 2012 | 2 | 36 | 31-41 | 100% |
| Murray | 2012 | 1 | 40 | 40 | 100% |
| Plush | 2013 | 1 | 48 | 48 | 100% |
| Kesha | 2013 | 1 | 39 | 39 | 100% |
| Bozeman | 2013 | 1 | 30 | 30 | 100% |
| Strote | 2014 | 43 | 30 | 21-56 | 95% |
| Maher | 2014 | 1 | 44 | 44 | 100% |
| Jovel | 2014 | 1 | 20 | 20 | 100% |
| Iwanicki | 2014 | 35 | 30 | - | 83% |
| Shields | 2015 | 1 | 38 | 38 | 100% |
| Michaud | 2016 | 14 | 36 | - | 100% |
| Labay | 2016 | 2 | 27 | 23-41 | 100% |
| Kristofic | 2016 | 1 | 23 | 23 | 100% |
| Byard | 2016 | 1 | 19 | 19 | 100% |
| Olives | 2016 | 135 | 31 | 24-42 | 80% |
| Scaggs | 2016 | 7 | - | 18-41 | 86% |
| Desharnais | 2017 | 1 | 42 | 42 | 100% |
| Pombo | 2017 | 1 | 26 | 26 | 100% |
| Riddell | 2017 | 98 | - | 18-63 | 78% |
| Roosens | 2017 | 1 | 25 | 25 | 100% |
| Kunz | 2018 | 1 | 39 | 39 | 100% |
| Debelmas | 2018 | 1 | 21 | 21 | 100% |
| Corstens | 2018 | 1 | 51 | 51 | 100% |
| Cole | 2018 | 49 | - | 18-66 | 76% |
| Kennedy | 2018 | 1 | 37 | 37 | 100% |
| Śliwicka | 2019 | 3 | 37 | 36-39 | 100% |
| Vilke | 2019 | 21 | 36 | - | 81% |
| Li | 2019 | 31 | 39 | - | 77% |
| Van Wonderen | 2020 | 2 | 20 | 20 | 100% |
| Mo | 2020 | 37 | - | - | 70% |
| Kunz | 2021 | 1 | 25 | 25 | 0% |

1. Etiologie van opwindingsdelier

Geïncludeerd zijn alle grotere studies (n>20) die keken naar zowel drugsgebruik als psychiatrische stoornissen als oorzaak.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1e auteur | Jaar | N | Drugs | | Psychiatrisch | |
| % | Welke | % | Welke |
| Pollanen | 1998 | 21 | 38% | Cocaïne | 57% | ‘Psychiatrische stoornis’ |
| Strote | 2014 | 43 | 79% | Multipositief (55%), cocaine (36%), amfetamine (24%), PCP (24%), opiaten (9%), cannabis (42%) | 47% | ‘Psychiatrische voorgeschiedenis’ |
| Riddell | 2017 | 98 | 70% | ‘Drugsgebruik’ | 44% | ‘Psychiatrische voorgeschiedenis’ |
| Cole | 2018 | 49 | 47% | Polymiddelmisbruik (18%), alcohol (16%), ‘chemische afhankelijkheid’ (8%), cocaine (4%) | 69% | ‘Psychiatrische voorgeschiedenis’ |
| Li | 2019 | 31 | 81% | ‘Middelenmisbruik’ | 32% | Bipolaire stoornis /schizoaffectieve stoornis (23%), depressie (10%) |
| Mo | 2020 | 37 | 60% | ‘Voorgeschiedenis van drugs- of alcoholmisbruik’ | 41% | ‘Voorgeschiedenis van psychose’ |

1. Pathofysiologische theorieën

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1e auteur | Jaar | Dopaminerge theorie | Adrenerge theorie | Asfyxische theorie | Mutlifacatioriele theorie | Overige theorie |
| Wetli | 1985 | - | - | - | X |  |
| O'Halloran | 1993 | - | - | X | - |  |
| Stratton | 1995 | - | - | X | - |  |
| Ruttenber | 1997 | X | - | - | - |  |
| Segal | 1997 | X | - | - | - |  |
| Ross | 1998 | - | - | X | - |  |
| Pollanen | 1998 | - | - | X | - |  |
| Hick | 1999 | - | - | - | X |  |
| Mash | 1999 | X | - | - | - |  |
| Mash | 2000 | - | - | - | - | Serotonerge pathway |
| Blaho | 2000 | X | - | - | - |  |
| Morrison | 2001 | - | - | - | X |  |
| Stratton | 2001 | - | - | - | X |  |
| Mash | 2002 | X | - | - | - |  |
| Parkes | 2002 | - | - | X | - |  |
| Mash | 2003 | X | - | - | - |  |
| Pestaner | 2003 | - | - | - | X |  |
| Strote | 2006 | - | - | - | X |  |
| Bunai | 2008 | - | - | - | - | Fatale hyperthermie |
| Mash | 2009 | X | - | - | - |  |
| Das | 2009 | - | X | - | - |  |
| Kutcher | 2009 | - | X | - | - |  |
| DeBard | 2009 | X | - | - | - |  |
| Samuel | 2009 | - | - | - | - | Zelfde pathofysiologie als maligne neuroleptica syndroom en katatonie |
| Otahbachi | 2010 | - | X | - | - |  |
| Takeuchi | 2011 | X | - | - | - |  |
| Vilke | 2012 | X | - | - | - |  |
| Vilke | 2012 | X | - | - | - |  |
| Plush | 2013 | X | - | - | - |  |
| Bozeman | 2013 | - | - | - | - | Fatale aritmie door QTc-verlenging |
| Gordon | 2013 | - | - | - | X |  |
| Huesgen | 2013 | - | - | - | - | Er bestaat geen goede data, pathofysiologie is onbekend |
| Gill | 2014 | - | - | - | X |  |
| Karch | 2015 | X | - | - | - |  |
| Michaud | 2016 | - | - | - | X |  |
| Schiavone | 2016 | - | - | - | - |  |
| Schiavone | 2016 | - | - | - | - |  |
| Mash | 2016 | X | - | - | - |  |
| Lipsedge | 2016 | - | - | X | - |  |
| Reijnen | 2017 | - | - | X | - |  |
| Gonin | 2018 | - | - | - | X |  |
| Byard | 2018 | - | - | - | X |  |
| Vilke | 2019 | - | - | - | - | Centrale rol voor cortisol |
| Baltzer Nielsen | 2019 | - | - | - | - | Zelfde pathofysiologie als maligne katatonie en Takotsubo cardiomyopathie, vergelijkbaar met ‘capture myopathie’ in het dierenrijk |
| Strömmer | 2020 | - | - | X | - |  |
| Dijkhuizen | 2020 | - | - | - | X |  |
| Byard | 2020 | - | - | X | - |  |

1. Behandeling, opname en prognose

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1e auteur | Jaar | N | Behandeling | Complicaties van behandeling | | Ziekenhuispname | | Mortaliteit |
|  |  |  |  | % | Welke | % | Duur (gemiddeld of mediaan) |  |
| Wetli | 1985 | 7 | Symptomatisch (bijv. propranolol, diazepam) | - | - | - | - | 100% |
| Hick | 1999 | 5 | Symptomatisch, IC-opname, acidose herstellen | - | - | 100% | 2 | 80% |
| Allam | 2001 | 1 | Symptomatisch, IC-opname, acidose herstellen | - | - | 100% | 3 | 0% |
| Morrison | 2001 | 1 | Voorkom buikligging en druk op borstkas/nek | - | - | - |  | 100% |
| Das | 2009 | 3 | De-escaleren, z.s.m. sederen en vervoer naar ziekenhuis | - | - | - | - | 100% |
| Kutcher | 2009 | 0 | Vroegtijdige herkennen en sederen | - | - | - | - | - |
| DeBard | 2009 | 0 | Symptomatisch | - | - | - | - | - |
| Otahbachi | 2010 | 0 | Voorkom buikligging, sedatie met benzodiazepines i.p.v. antipsychotica | - | - | - | - | - |
| Takeuchi | 2011 | 0 | Vroegtijdige sedatie | - | - | - | - | - |
| Le Cong | 2012 | 18 | Ketamine (i.v.) | 22% | Hypertensie, tachycardie | - | - | 0% |
| Burnett | 2012 | 13 | Ketamine (i.v.) | 58% | Speekselvloed, onvoldoende sedatie, hypoxie, intubatie, laryngospasme | 58% | - | 0% |
| Burnett | 2012 | 1 | Ketamine (i.v.) | 100% | Laryngospasme | 100% | - | 0% |
| Vilke | 2012 | 0 | Vroegtijdig inschakelen van ambulance, sedatie met benzodiazepines of ketamine | - | - | - | - | - |
| Ho | 2013 | 2 | Ketamine (i.m.) | 0% | - | 100% | 4 | - |
| Bozeman | 2013 | 1 | Agressieve ‘supportive care’ op IC, bijv. koelen | - | - | 100% | 2 | - |
| Gordon | 2013 | 0 | Benzodiazepines, i.v. vochtsuppletie, koelen | - | - |  | - | 0% |
| Achilles | 2013 | 0 | Symptomatisch | - | - |  | - | 0% |
| Iwanicki | 2014 | 35 | Ketamine (i.m.) | - | - | 69% | 1 | - |
| Olives | 2016 | 135 | Ketamine (i.m.) | 67% | Intubatie (63%), onvoldoende sedatie (14%) | - | - | 1.7% |
| Scaggs | 2016 | 7 | Ketamine (i.m. of i.v.) | - | - | 29% | 1 | 0% |
| Riddell | 2017 | 98 | Ketamine vs. midazolam vs. lorazepam vs. haldol vs. combinatie (i.m. of i.v.) | - | - | 38% | - | 0% |
| Roosens | 2017 | 1 | Symtomatisch | - | - | - | - | 0% |
| Cole | 2018 | 49 | Ketamine (i.v.) | 28% | Speekselvloed (18%), braken (6%), onvoldoende sedatie (4%) | 84% | 2 | 2% |
| Kennedy | 2018 | 1 | Z.s.m. medische zorg vanuit politiecel | - | - | - | - | 100% |
| Linder | 2018 | 0 | Rol voor ketamine | - | - | - | - | - |
| Li | 2019 | 31 | Ketamine (i.m. of i.v.) | - | Intubatie (19%), onvoldoend sedatie (29%), misselijkheid (3%), speekselvloed (3%) | 39% | - | 0% |
| Mo | 2020 | 37 | Ketamine (i.m.) | 16% | Hypoxie (16%), intubatie (3%) | - | - | 0% |
| Strömmer | 2020 | 0 | Voorkomen fysieke escalatie/geweld | - | - | - | - | - |
| Armour | 2020 | 0 | Meerdere medicijnen mogelijk. Ketamine heeft snel effect maar relatief hoog risico op complicaties waaronder noodzaak tot intubatie. | - | - | - | - | - |
| Kim | 2021 | 0 | Droperidol en midazolam hebben het snelst effect. Ketamine kan als tweede keus gebruikt worden maar vergroot kans op intubatie. | - | - | - | - | - |

1. Overzicht van alle geïncludeerde studies, studiekarakteristieken

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1e auteur | Jaar | Design | Context | N | Land |
| Wetli | 1985 | R-CS | Forensisch | 7 | VS |
| O'Halloran | 1993 | R-CS | Forensisch | 11 | VS |
| Stratton | 1995 | R-CS | SEH | 2 | VS |
| Ruttenber | 1997 | R-CS | Forensisch | 58 | VS |
| Segal | 1997 | R-CS | Forensisch | 5 | VS |
| Ross | 1998 | R-CS | Forensisch | 61 | VS |
| Pollanen | 1998 | R-CS | Forensisch | 21 | Canada |
| Hick | 1999 | R-CS | SEH | 5 | VS |
| Mash | 1999 | R-CS | Forensisch | 8 | VS |
| Mash | 2000 | R-CS | Forensisch | 8 | VS |
| Blaho | 2000 | R-CS | SEH | 2 | VS |
| Allam | 2001 | R-CR | SEH | 1 | VK |
| Morrison | 2001 | R-CR | Forensisch | 1 | VK |
| Stratton | 2001 | R-CS | SEH | 216 | VS |
| Mash | 2002 | R-CS | Forensisch | 8 | VS |
| Parkes | 2002 | NR | Forensisch | 0 | VK |
| Mash | 2003 | R-CS | Forensisch | 8 | VS |
| Pestaner | 2003 | R-CS | Forensisch | 2 | VS |
| Paquette | 2003 | NR | Forensisch | 0 | VS |
| Strote | 2006 | R-CS | Forensisch | 28 | Wereldwijd |
| Channa Perera | 2007 | R-CR | Forensisch | 1 | Canada |
| Bunai | 2008 | R-CR | Forensisch | 1 | Japan |
| Mash | 2009 | R-CS | Forensisch | 90 | VS |
| Grant | 2009 | R-CS | Forensisch | 62 | VS |
| Das | 2009 | R-CS + NR | Forensic | 3 | Nederland |
| Kutcher | 2009 | Richtlijn | Multidisciplinair | 0 | Canada |
| DeBard | 2009 | Richtlijn | SEH | 0 | VS |
| Paterson | 2009 | R-CS | Forensisch | 3 | VK |
| Kiely | 2009 | R-CR | Forensisch | 1 | VS |
| Samuel | 2009 | R-CR + NR | Psychiatrisch | 1 | Canada |
| Otahbachi | 2010 | NR | SEH | 0 | VS |
| Strote | 2010 | R-CS | SEH | 4 | VS |
| Lucena | 2010 | P-CS | Forensisch | 3 | Spanje |
| Takeuchi | 2011 | NR | SEH | 0 | VS |
| Byard | 2011 | R-CR | Forensisch | 1 | Australië |
| Lusthof | 2011 | R-CR | Forensisch | 1 | Nederland |
| Le Cong | 2012 | R-CS | SEH | 18 | Australië |
| Burnett | 2012 | R-CS | SEH | 13 | VS |
| Burnett | 2012 | R-CR | SEH | 1 | VS |
| Penders | 2012 | R-CS | SEH | 3 | VS |
| Kodikara | 2012 | R-CS | Forensisch | 2 | Canada |
| Vilke | 2012 | NR | SEH | 0 | VS |
| Vilke | 2012 | NR | SEH | 0 | VS |
| Vilke | 2012 | NR | SEH | 0 | VS |
| Murray | 2012 | R-CR | SEH | 1 | VS |
| Johnson | 2012 | R-CS | Forensisch | 2 | VS |
| Ranson | 2012 | NR | Forensisch | 0 | Australië |
| Ho | 2013 | R-CS | SEH | 2 | VS |
| Plush | 2013 | R-CR | SEH | 1 | VS |
| Kesha | 2013 | R-CR | Forensisch | 1 | VS |
| Bozeman | 2013 | R-CR | SEH | 1 | VS |
| Gordon | 2013 | NR | SEH | 0 | VS |
| Achilles | 2013 | Richtlijn | Multidisciplinair | 0 | Nederland |
| Hall | 2013 | PC | Politie | 37 | Canada |
| Huesgen | 2013 | NR | SEH | 0 | VS |
| Strote | 2014 | R-CS | Politie | 66 | VS |
| Maher | 2014 | R-CR | SEH | 1 | VS |
| Jovel | 2014 | R-CR | Forensisch | 1 | VS |
| Iwanicki | 2014 | PC | SEH | 35 | VS |
| Gill | 2014 | NR | Forensisch | 0 | VS |
| Hall | 2015 | PC | Politie | 86 | Canada |
| Shields | 2015 | R-CR | Forensisch | 1 | VS |
| Karch | 2015 | NR | Forensisch | 0 | VS |
| Baldwin | 2016 | PC | Politie | 73 | Canada |
| Michaud | 2016 | R-CS | Forensisch | 14 | Canada |
| Ezaki | 2016 | R-CS | Forensisch | 2 | Japan |
| Labay | 2016 | R-CS | Forensisch | 2 | VS |
| Schiavone | 2016 | R-CR | Experimenteel | 1 | Italië |
| Kristofic | 2016 | R-CS | Forensisch | 1 | VS |
| Byard | 2016 | R-CR | Forensisch | 1 | Australië |
| Rajagopalan | 2016 | R-CR | Forensisch | 1 | Canada |
| Olives | 2016 | R-CS | SEH | 135 | VS |
| Scaggs | 2016 | R-CS | SEH | 7 | VS |
| Schiavone | 2016 | NR | Experimenteel | 0 | Italië |
| Mash | 2016 | NR | Forensisch | 0 | VS |
| Lipsedge | 2016 | NR | Psychiatrisch | 0 | VK |
| Desharnais | 2017 | R-CR | Forensisch | 1 | Canada |
| Pombo | 2017 | R-CR | Forensic | 1 | VS |
| Riddell | 2017 | PC | SEH | 98 | VS |
| Roosens | 2017 | NR + CR | Psychiatrisch | 1 | België |
| Reijnen | 2017 | NR | Forensisch | 0 | Nederland |
| Baldwin | 2018 | P-CS | Politie | 156 | Canada |
| Kunz | 2018 | R-CR | Forensisch | 1 | IJsland |
| Debelmas | 2018 | R-CR | SEH | 1 | Frankrijk |
| Corstens | 2018 | R-CR | Psychiaty | 1 | Nederland |
| Cole | 2018 | PC | SEH | 49 | VS |
| Kennedy | 2018 | R-CR | Forensisch | 1 | VS |
| Linder | 2018 | NR | SEH | 0 | VS |
| Gonin | 2018 | SR | Multidisciplinair | 0 | Wereldwijd |
| Byard | 2018 | NR | Forensisch | 0 | Australië |
| Śliwicka | 2019 | R-CS | Forensisch | 3 | Polen |
| Vilke | 2019 | R-CS | SEH | 21 | VS |
| Li | 2019 | R-CS | SEH | 31 | VS |
| Baltzer Nielsen | 2019 | SR | SEH | 0 | Denemarken |
| Van Wonderen | 2020 | R-CS | SEH | 2 | Nederland |
| Mo | 2020 | R-CS | SEH | 37 | VS |
| Strömmer | 2020 | SR | Multidisciplinair | 0 | Wereldwijd |
| Armour | 2020 | NR | SEH | 0 | Canada |
| Dijkhuizen | 2020 | R-CS | Forensisch | 0 | Nederland |
| Byard | 2020 | R-CS | Forensisch | 0 | Australië |
| Kunz | 2021 | R-CR | Forensisch | 1 | IJsland |
| Rimmer | 2021 | EC | Multidisciplinair | 0 | VK |
| Kim | 2021 | EC | SEH | 0 | VS |

R-CR = retrospective case report

R-CS = retrospective case series

P-CS = prospective case series

PC = prospective cohort study

NR = narrative review

EC = expert consensus

SR = systematic review

1. Referenties

* Achilles A, Das K, Dorn T e.a. *Richtlijn Excited Delirium Syndroom*. 2013 (https://www.ggd.amsterdam.nl/publish/pages/472729/richtlijn\_excited\_delirium\_syndroom.pdf)
* Allam S, Noble JS. Cocaine-excited delirium and severe acidosis. *Anaesthesia* 2001; 56(4): 385-386.
* Armour R. Chemical sedation of excited delirium in the pre-hospital setting. *Br Paramed J* 2020; 4(4): 34-39.
* Baldwin S, Hall C, Bennell C e.a. Distinguishing features of Excited Delirium Syndrome in non-fatal use of force encounters. *J Forensic Leg Med* 2016; 41(2): 21-27.
* Baldwin S, Hall C, Blaskovits B e.a. Excited delirium syndrome (ExDS): Situational factors and risks to officer safety in non-fatal use of force encounters. *Int J Law Psychiatry* 2018; 60(3): 26-34.
* Baltzer Nielsen S, Stanislaus S, Saunamäki K e.a. Can acute stress be fatal? A systematic cross-disciplinary review. *Stress* 2019; 22(3).
* Blaho K, Winbery S, Park L e.a.. Cocaine metabolism in hyperthermic patients with excited delirium. *J Clin Forensic Med* 2000; 7(2): 71-76.
* Bozeman WP, Ali K, Winslow JE. Long QT Syndrome Unmasked in an Adult Subject Presenting with Excited Delirium. *J Emerg Med* 2013; 44(2): e207-e210.
* Bunai Y, Akaza K, Jiang WX e.a. Fatal hyperthermia associated with excited delirium during an arrest. *Leg Med* 2008; 10(6): 306-309.
* Burnett AM, Salzman JG, Griffith KR e.a. The emergency department experience with prehospital ketamine: a case series of 13 patients. *Prehosp Emerg Care* 2012; 16(4): 553-559.
* Burnett AM, Watters BJ, Barringer KW e.a. Laryngospasm and hypoxia after intramuscular administration of ketamine to a patient in excited delirium. *Prehosp Emerg Care* 2012; 16(3): 412-414.
* Byard RW, Cox M, Stockham P. Blunt Craniofacial Trauma as a Manifestation of Excited Delirium Caused by New Psychoactive Substances. *J Forensic Sci* 2016; 61(6): 1546-1548.
* Byard RW, Summersides G, Thompson A. Confluent muscle pallor: a macroscopic marker of cocaine-induced rhabdomyolysis. *Forensic Sci Med Pathol* 2011; 7(4): 364-366.
* Byard RW. Ongoing issues with the diagnosis of excited delirium. *Forensic Sci Med Pathol* 2018; 14(2): 149-151.
* Byard RW. The relationship between positional asphyxia and increasing body mass index. *Leg Med (Tokyo)* 2020; 43: 101678.
* Channa Perera SD, Pollanen MS. Sudden death due to sickle cell crisis during law enforcement restraint. *J Forensic Leg Med* 2007; 14(5): 297-300.
* Cole JB, Klein LR, Nystrom PC e.a. A prospective study of ketamine as primary therapy for prehospital profound agitation. *Am J Emerg Med* 2018; 36(5).
* Corstens D. Excited delirium syndrome after withdrawal from 10 days long recreationally used GHB. *J Forensic Leg Med* 2018; 54: 74-75.
* Das CK, Ceelen M, Dorn T e.a. [Cocaine use and sudden death: excited delirium syndrome]. *Ned Tijdschr Geneeskd* 2009; 153: B299.
* DeBard ML, Adler J, Bozeman W e.a. White Paper Report on Excited Delirium Syndrome. (http://www.fmhac.net/Assets/Documents/2012/Presentations/KrelsteinExcitedDelirium.pdf)
* Debelmas A, Benchetrit D, Galanaud D e.a. Case 251: Nontraumatic Drug-associated Rhabdomyolysis of Head and Neck Muscles. *Radiology* 2018; 286(3): 1088-1092.
* Desharnais B, Dazé Y, Huppertz LM e.a. A case of fatal idiosyncratic reaction to the designer drug 3,4-methylenedioxypyrovalerone (MDPV) and review of the literature. *Forensic Sci Med Pathol* 2017; 13(3): 350-354.
* Dijkhuizen LGM, Kubat B, Duijst WLJM. Sudden death during physical restraint by the Dutch police. *J Forensic Leg Med* 2020; 72(2): 101966.
* Ezaki J, Ro A, Hasegawa M e.a. Fatal overdose from synthetic cannabinoids and cathinones in Japan: demographics and autopsy findings. *Am J Drug Alcohol Abuse* 2016; 42(5): 520-529.
* Gill JR. The syndrome of excited delirium. *Forensic Sci Med Pathol* 2014; 10(2): 223-228.
* Gonin P, Beysard N, Yersin B e.a. Excited Delirium: A Systematic Review. *Acad Emerg Med* 2018; 25(5): 552-565.
* Gordon C, Schmelzer M. Care of the patient in excited delirium. *J Emerg Nurs* 2013; 39(2): 190-196.
* Grant JR, Southall PE, Mealey J e.a. Excited Delirium Deaths in Custody: past and present. *Am J Forensic Med Pathol* 2009; 30(1): 1-5.
* Hall C, Votova K, Heyd C, et al. Restraint in police use of force events: examining sudden in custody death for prone and not-prone positions. *J Forensic Leg Med* 2015; 31: 29-35.
* Hall CA, Kader AS, Danielle McHale AM e.a. Frequency of signs of excited delirium syndrome in subjects undergoing police use of force: Descriptive evaluation of a prospective, consecutive cohort. *J Forensic Leg Med* 2013; 20(2): 102-107.
* Hick JL, Smith SW, Lynch MT. Metabolic acidosis in restraint-associated cardiac arrest: a case series. *Acad Emerg Med* 1999; 6(3): 239-243.
* Ho JD, Smith SW, Nystrom PC e.a. Successful management of excited delirium syndrome with prehospital ketamine: two case examples. *Prehosp Emerg Care* 2013; 17(2): 274-279.
* Huesgen K, Judge B, Carley S. Towards evidence-based emergency medicine: best BETs from the Manchester Royal Infirmary. BET 1: excited delirium syndrome and sudden death. *Emerg Med J* 2013; 30(11): 958-960.
* Iwanicki J. Prehospital ketamine for excited delirium in the setting of acute drug intoxication. In: *2014 Annual Meeting of the NACCT*.
* Johnson MM, David JA, Michelhaugh SK e.a. Increased heat shock protein 70 gene expression in the brains of cocaine-related fatalities may be reflective of postdrug survival and intervention rather than excited delirium. *J Forensic Sci* 2012; 57(6): 1519-1523.
* Jovel A, Felthous A, Bhattacharyya A. Delirium due to intoxication from the novel synthetic tryptamine 5-MeO-DALT. *J Forensic Sci* 2014; 59(3): 844-846.
* Karch SB. Cathinone neurotoxicity ("The “3Ms”). *Curr Neuropharmacol* 2015; 13(1): 21-25.
* Kennedy DB, Savard DM. Delayed In-Custody Death Involving Excited Delirium. *Journal of Correctional Health Care* 2018; 24(1): 43-51.
* Kesha K, Boggs CL, Ripple MG, et al. Methylenedioxypyrovalerone (“bath salts”), related death: case report and review of the literature. *J Forensic Sci* 2013; 58(6): 1654-1659.
* Kiely E, Lee CJ, Marinetti L. A fatality from an oral ingestion of methamphetamine. *J Anal Toxicol* 2009; 33(8): 557-560.
* Kim HK, Leonard JB, Corwell BN e.a. Safety and efficacy of pharmacologic agents used for rapid tranquilization of emergency department patients with acute agitation or excited delirium. *Expert Opin Drug Saf* 2021; 20(2): 123-138.
* Kodikara S, Cunningham K, Pollanen MS. “Excited delirium syndrome”: Is it a cause of death? *Leg Med* 2012; 14(5): 252-254.
* Kristofic JJ, Chmiel JD, Jackson GF e.a. Detection of 25C-NBOMe in Three Related Cases. *J Anal Toxicol* 2016; 40(6): 466-472.
* Kunz SN, Þórðardóttir S, Jónasson JG. Arrest-related death on the basis of a drug-induced excited delirium syndrome. *J Forensic Leg Med* 2021; 77: 102091.
* Kunz SN, Þórðardóttir S, Rúnarsdóttir R. Restraint-related asphyxia on the basis of a drug-induced excited delirium. *Forensic Sci Int* 2018; 288: e5-e9.
* Kutcher S, Bowes M, Sanford F e.a. Report of the Panel of Mental Health and Medical Experts Review of Excited Delirium. 2009 (http://novascotia.ca/just/public\_safety/\_docs/Excited%20Delirium%20Report.pdf)
* Labay LM, Caruso JL, Gilson TP e.a. Synthetic cannabinoid drug use as a cause or contributory cause of death. *Forensic Sci Int* 2016; 260: 31-39.
* le Cong M, Gynther B, Hunter E e.a. Ketamine sedation for patients with acute agitation and psychiatric illness requiring aeromedical retrieval. *Emerg Med J* 2012; 29(4): 335-337.
* Li M, Martinelli AN, Oliver WD e.a. Evaluation of Ketamine for Excited Delirium Syndrome in the Adult Emergency Department. *J Emerg Med* 2019; S0736-4679(19)30802-9.
* Linder LM, Ross CA, Weant KA. Ketamine for the Acute Management of Excited Delirium and Agitation in the Prehospital Setting. *Pharmacotherapy* 2018; 38(1): 139-151.
* Lipsedge M. Excited delirium: A psychiatric review. *Med Sci Law* 2016; 56(2).
* Lucena J, Blanco M, Jurado C e.a. Cocaine-related sudden death: a prospective investigation in south-west Spain. *Eur Heart J* 2010; 31(3): 318-329.
* Lusthof KJ, Oosting R, Maes A e.a. A case of extreme agitation and death after the use of mephedrone in The Netherlands. *Forensic Sci Int* 2011; 206(1-3): e93-e95.
* Maher PJ, Walsh M, Burns T e.a. Prehospital resuscitation of a man with excited delirium and cardiopulmonary arrest. *CJEM* 2014; 16(1): 80-83.
* Mash DC, Duque L, Pablo J e.a. Brain biomarkers for identifying excited delirium as a cause of sudden death. *Forensic Sci Int* 2009; 190(1-3): e13-9.
* Mash DC, Ouyang Q, Pablo J e.a. Cocaine Abusers Have an Overexpression of α-Synuclein in Dopamine Neurons. *The Journal of Neuroscience*. 2003; 23(7): 2564-2571.
* Mash DC, Pablo J, Ouyang Q e.a. Dopamine transport function is elevated in cocaine users. *J Neurochem* 2002; 81(2): 292-300.
* Mash DC, Staley JK, Izenwasser S e.a. Serotonin transporters upregulate with chronic cocaine use. *J Chem Neuroanat* 2000; 20(3-4): 271-280.
* Mash DC, Staley JK. D3 dopamine and kappa opioid receptor alterations in human brain of cocaine-overdose victims. *Ann N Y Acad Sci* 1999; 877: 507-522.
* Mash DC. Excited Delirium and Sudden Death: A Syndromal Disorder at the Extreme End of the Neuropsychiatric Continuum. *Front Physiol*. 2016; 7: 435.
* Michaud A. Restraint related deaths and excited delirium syndrome in Ontario (2004-2011). *J Forensic Leg Med* 2016; 41(1): 30-35.
* Mo H, Campbell MJ, Fertel BS e.a. Ketamine Safety and Use in the Emergency Department for Pain and Agitation/Delirium: A Health System Experience. *West J Emerg Med* 2020; 21(2): 272-281.
* Morrison A, Sadler D. Death of a psychiatric patient during physical restraint. Excited delirium--a case report. *Med Sci Law* 2001; 41(1): 46-50.
* Murray BL, Murphy CM, Beuhler MC. Death following recreational use of designer drug “bath salts” containing 3,4-Methylenedioxypyrovalerone (MDPV). *J Med Toxicol* 2012; 8(1): 69-75.
* O’Halloran RL, Lewman L. Restraint asphyxiation in excited delirium. *Am J Forensic Med Pathol* 1993; 14(4): 289-295.
* Olives TD, Nystrom PC, Cole JB e.a. Intubation of Profoundly Agitated Patients Treated with Prehospital Ketamine. *Prehosp Disaster Med* 2016; 31(6): 593-602.
* Otahbachi M, Cevik C, Bagdure S e.a. Excited delirium, restraints, and unexpected death: a review of pathogenesis. *Am J Forensic Med Pathol* 2010; 31(2): 107-112.
* Paquette M. Excited Delirium: Does It Exist? *Perspect Psychiatr Care* 2003; 39(3): 93-94.
* Parkes J. A review of the literature on positional asphyxia as a possible cause of sudden death during restraint. *The British Journal of Forensic Practice* 2002; 4(1): 24-30.
* Paterson S, Cordero R, Stearns E. Chronic drug use confirmed by hair analysis: its role in understanding both the medical cause of death and the circumstances surrounding the death. *J Forensic Leg Med* 2009; 16(3): 143-147.
* Penders TM, Gestring RE, Vilensky DA. Excited delirium following use of synthetic cathinones (bath salts). *Gen Hosp Psychiatry* 2012; 34(6): 647-650.
* Pestaner JP, Southall PE. Sudden death during arrest and phencyclidine intoxication. *Am J Forensic Med Pathol* 2003; 24(2): 119-122.
* Plush T, Shakespeare W, Jacobs D e.a. Cocaine-induced agitated delirium: a case report and review. *J Intensive Care Med* 2015; 30(1): 49-57.
* Pollanen MS, Chiasson DA, Cairns JT e.a. Unexpected death related to restraint for excited delirium: a retrospective study of deaths in police custody and in the community. *CMAJ* 1998; 158(12): 1603-1607.
* Pombo R, Johnson E, Gamboa A e.a. Autopsy-proven Mirtazapine Withdrawal-induced Mania/Hypomania Associated with Sudden Death. *J Pharmacol Pharmacother* 2017; 8(4): 185-187.
* Rajagopalan A, Pollanen MS. Sudden death during struggle in the setting of heterozygosity for a mutation in calsequesterin 2. *Forensic Sci Med Pathol* 2016; 12(1): 86-89.
* Ranson D. Excited delirium syndrome: a political diagnosis? *J Law Med* 2012; 19(4): 667-672.
* Reijnen G, Vos P, Das C, Reijnders U. Herkennen van positionele asfyxie. *Ned Tijdschr Geneeskd* 2017; 161(D1375).
* Riddell J, Tran A, Bengiamin R e.a. Ketamine as a first-line treatment for severely agitated emergency department patients. *Am J Emerg Med* 2017;35(7).
* Rimmer A. Excited delirium: what’s the evidence for its use in medicine? *BMJ* 2021; 373: n1156.
* Roosens E, Mulier JP, Heylens G e.a.. [The use of dexmedetomidine in extreme agitation]. *Tijdschr Psychiatr* 2017; 59(9): 554-558.
* Ross DL. Factors associated with excited delirium deaths in police custody. *Mod Pathol* 1998; 11(11): 1127-1137.
* Ruttenber AJ, Lawler-Heavner J, Yin M e.a. Fatal Excited Delirium Following Cocaine Use: Epidemiologic Findings Provide New Evidence for Mechanisms of Cocaine Toxicity. *J Forensic Sci* 1997; 42(1).
* Samuel E, Williams R, Ferrell R. Excited delirium: Consideration of selected medical and psychiatric issues. *Neuropsychiatr Dis Treat* 2009: 61.
* Scaggs TR, Glass DM, Hutchcraft MG e.a. Prehospital Ketamine is a Safe and Effective Treatment for Excited Delirium in a Community Hospital Based EMS System. *Prehosp Disaster Med* 2016; 31(5): 563-569.
* Schiavone S, Neri M, Mhillaj E e.a. The role of the NADPH oxidase derived brain oxidative stress in the cocaine-related death associated with excited delirium: A literature review. *Toxicol Lett* 2016; 258(4): 29-35.
* Schiavone S, Riezzo I, Turillazzi E e.a. Involvement of the NADPH Oxidase NOX2-Derived Brain Oxidative Stress in an Unusual Fatal Case of Cocaine-Related Neurotoxicity Associated With Excited Delirium Syndrome. *J Clin Psychopharmacol*. 2016; 36(5): 513-517.
* Segal DM, Moraes CT, Mash DC. Up-regulation of D3 dopamine receptor mRNA in the nucleus accumbens of human cocaine fatalities. *Brain Res Mol Brain Res* 1997; 45(2): 335-339.
* Shields LBE, Rolf CM, Hunsaker JC. Sudden Death Due To Acute Cocaine Toxicity-Excited Delirium in a Body Packer. *J Forensic Sci* 2015; 60(6): 1647-1651.
* Śliwicka O, Szatner K, Borowska-Solonynko A. Three postmortem case reports of the excited delirium syndrome - A short comparison. *J Forensic Leg Med* 2019; 66: 134-137.
* Stratton SJ, Rogers C, Brickett K e.a. Factors associated with sudden death of individuals requiring restraint for excited delirium. *Am J Emerg Med* 2001; 19(3).
* Stratton SJ, Rogers C, Green K. Sudden death in individuals in hobble restraints during paramedic transport. *Ann Emerg Med* 1995; 25(5): 710-712.
* Strömmer EMF, Leith W, Zeegers MP e.a. The role of restraint in fatal excited delirium: a research synthesis and pooled analysis. *Forensic Sci Med Pathol* 2020; 16(4): 680-692.
* Strote J, Range Hutson H. Taser Use in Restraint-Related Deaths. *Prehospital Emergency Care* 2006; 10(4): 447-450.
* Strote J, Walsh M, Angelidis M e.a. Conducted electrical weapon use by law enforcement: an evaluation of safety and injury. *J Trauma* 2010; 68(5): 1239-1246.
* Strote J, Walsh M, Auerbach D e.a. Medical conditions and restraint in patients experiencing excited delirium. *Am J Emerg Med* 2014; 32(9).
* Takeuchi A, Ahern TL, Henderson SO. Excited Delirium. *West J Emerg Med* 2011; 12(1): 77-83.
* van Wonderen K, Jongbloed-de Hoon M, Meinders AJ e.a. Two cases of a prolonged excited delirium syndrome after chloromethcathinone ingestion. *Neth J Med* 2020; 78(5): 300-302.
* Vilke GM, Bozeman WP, Dawes DM e.a. Excited delirium syndrome (ExDS): Treatment options and considerations. *J Forensic Leg Med* 2012; 19(3): 117-121.
* Vilke GM, DeBard ML, Chan TC e.a. Excited Delirium Syndrome (ExDS): defining based on a review of the literature. *J Emerg Med* 2012; 43(5): 897-905.
* Vilke GM, Mash DC, Pardo M e.a. EXCITATION study: Unexplained in-custody deaths: Evaluating biomarkers of stress and agitation. *J Forensic Leg Med* 2019; 66: 100-106.
* Vilke GM, Payne-James J, Karch SB. Excited delirium syndrome (ExDS): redefining an old diagnosis. *J Forensic Leg Med* 2012; 19(1): 7-11.
* Wetli C, Fishbain D. Cocaine-induced psychosis and sudden death in recreational cocaine users. *J Forensic Sci* 1985; 30(3): 873-880.