**Table 2.** Studies on psychiatric side effects of fluoroquinolones. The risk of bias and study quality assessed with the Effective Public Health Practice Project’s Quality Assessment Tool for Quantitative Studies (QATQS) was presented as the global rating for each publication (3 – weak).

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Authors and year** | **Type of study** | **N** | **Sex/age (years)** | **Dose** | **Administration route** | **Indications** | **Time of the onset of psychiatric symptoms** | **Concomitant medication** | **Psychiatric symptoms** | **Past medical history** | **History of CNS disorders and substance abuse** | **Time to the complete resolution of psychotic symptoms** | **Treatment of psychiatric symptoms** | **QATQS Global Rating** |
| **Levofloxacin** | | | | | | | | | | | | | | |
| Odeh, M., et al. [14] | CR | 1 | Man/76 | 500 mg/day | Per os | Acute bronchitis | 3 days | Aspirin, ramipril, bisoprolol,  Atorvastatin. | Delirium: impaired attention capacity, visual hallucinations, irritable, confused | Ischemic heart disease with stable angina pectoris, hypertension, hypercholesterolemia, mild renal failure, peripheral arterial disease | Heavy tobacco smoking of 15 years duration (stopped 16 years ago) | 48 hours | Withdrawal | 3 |
| Velickovic-Radovanovic, R., et al. [15] | CR | 1 | Woman/48 | 500 mg/day | IV | Enterocolitis, urinary infection | 3 days | Metronidazole, probiotic yeast culture *Saccharomyces boulardii,* carvedilol, ranitidine, calcium carbonate, B-complex vitamins | Psychotic disorder: confusion, disorientation, signs of delirium | Chronic kidney disease | No | 4 days | Withdrawal, lorazepam, haloperidol | 3 |
| Muradian, M. and S. Khan et al. [16] | CR | 1 | Woman/23 | ND | ND | Bilateral submandibular abscesses | 3 days | Metronidazole, clindamycin | Psychosis: progressive paranoia and insomnia, visual hallucinations, flat affect, poor eye contact | Recurrent submandibular abscesses and a  submental abscess, allergy to antibiotics including amoxicillin, ampicillin, and penicillin | No | 3 days | Withdrawal | 3 |
| Maharani, B., et al. [17] | CR | 1 | Man/19 | 500 mg/day | Per os | Acute sinusitis | 0,5 hour | Paracetamol, naphazoline | Acute anxiety with tactile hallucinations: blurring of vision, anxiety, confusion | No | No | 1 hour | Withdrawal | 3 |
| Kang, G., et al. [18] | CR | 1 | Man/78 | 500 mg/day | IV | Pneumonia | 2 days | Clopidogrel, choline alfoscerate, rebamipide, nizatidine, erdosteine | Confused mental state, difficulty of sleep initiation, and visual hallucinations | Diabetes mellitus, hypertension, old left basal ganglia hemorrhage, cerebellar lacunar infarct | No | 1 day | Withdrawal, lamotrigine | 3 |
| Annadatha, A., et al. [19] | CR | 1 | Woman/62 | 500 mg/day | Per os | Acute bronchopneumonia | 3 days | Paracetamol | Psychosis: auditory hallucination, irrelevant behavior | ND | No | 48 hours | Withdrawal | 3 |
| Steuber, H., D. et al. [20] | CR | 1 | Woman/67 | 750 mg/day | Per os | Community acquired pneumonia | 3 days | Azithromycin, ambrisentan, calcium citrate, fexofenadine, tramadol, cevimeline, tadalafil, vitamin E, fish oil, multivitamins | Psychosis: progressive altered mental status, intermittent repetitive statements and non-sensical statements | Pulmonary hypertension, rheumatoid arthritis, Sjogren's syndrome | Brain atrophy vs. hydrocephalus without changes in the last 3 years, one episode of steroid-induced psychosis | 1 week | Withdrawal,  Lorazepam, aripiprazole | 3 |
| Kogan, Y., et al. et al. [21] | CR | 1 | Woman/79 | 750 mg/day | Per os | Pneumonia | 3 days | Ramipril, simvastatin | Acute delirium: confusion, irritability, disorientation, acoustic hallucinations, impaired attention capacity | Hypertension, hypercholesterolemia, allergy to penicillin | No | 48 hours | Withdrawal | 3 |
| Takser, L. and R. Grad, et al. [22] | CR | 1 | Woman/22 | 500 mg/day | Per os | Urinary tract infection | ND | ND | Acute psychosis: a sense of derealization, depersonalization, agitation, auditory hallucinations, insomnia, nightmares | ND | No | ND | ND | 3 |
| ŞAhan, E. and S. SetÇElİK et al. [23] | CR | 1 | Man/51 | 750 mg/day | Per os | Acute renal failure, pneumonia | 48 h | Ceftriaxone | Delirium, visual hallucinations, suicidal attempt | No | No | 24 hours | Withdrawal, amisulpride, haloperidol | 3 |
| Khan, A. and E. Khan et al. [24] | CR | 1 | Woman/66 | ND | Per os | Severe urosepsis secondary to a urinary tract infection | 1 day | Piperacillin, tazobactam | Delirium with psychotic features: disorientation, paranoid delusions, visual hallucinations, a bizarre and tangential thought process, physical agitation | Multiple sclerosis, Sjogren’s syndrome | No | 36 hours | Withdrawal | 3 |
| Husain, N.S.F., et al. [25] | CR | 1 | Woman/2 | ND | ND | Preparation for bone marrow transplantation | Few hours after 1st dose | ANBL09P1 chemotherapeutic regimen, bisulfan, acyclovir, fluconazole, odansetron, lorazepam, aprepitant, cyproheptadine, cholecalciferol, omeprazole, ursodiol, oxycodone, morphine, melatonin | Delirium, sleep disturbance with episodes of agitation, disorientation, psychomotor agitation, aggression, mood lability, visual and tactile hallucinations | Stage IV neuroblastoma (MYCN nonamplified), 5 cycles of induction chemotherapy, episode of Klebsiella sepsis and 2 previous admissions for fever in the setting of neutropenia | No | ND | Withdrawal | 3 |
| Ghoshal, A., et al. [26] | CR | 1 | Man/17 | 500 mg/day | IV | Community-acquired pneumonia | 10 minutes | Ceftriaxone, hydrocortisone, chlorpheneramine, adrenaline | Acute delirium: confused, disoriented, increased restlessness, agitation, violent behavior, visual hallucinations | Synovial sarcoma of right thigh with chest wall and lung metastasis | No | 14 hours | Withdrawal, haloperidol midazolam | 3 |
| Chowdhry, V., et al. [27] | CR | 1 | Woman/ middle-aged | 750 mg/day | Per os | Treated empirically - urinary tract infection | 1 day | Midazolam, fentanyl, pancuronium, isoflurane, paracetamol | Delirium: anxiety, restlessness, insomnia, confusion, drowsiness, irritability, agitation | Cardiac surgery (mitral valve replacement) | No | 72 hours | Withdrawal, clozapine | 3 |
| Agu, C., et al. [28] | CR | 1 | Man/25 | ND | IV | Pneumonia | ND | Vancomycin, meropenem | Acute psychosis: horrid visual hallucination, agitation | ND | No | ND | Withdrawal | 3 |
| Singh, D., et al. [29] | CR | 1 | Man/28 | 500 mg/day | Per os | Pneumonia with urinary tract infection | 3 days | Paracetamol, sodium citrate | Acute psychosis: restlessness, irritation and purposeless wandering, irrelevant and incoherent speech, insomnia, violent behavior, auditory hallucinations, derangement of personality, loss of contact with reality | No | No | 2 days | Withdrawal, lorazepam | 3 |
| Raj, V. and T.V. Murthy, et al. [30] | CR | 1 | Woman/13 | 500 mg/day | Per os | Acute bronchitis | 2 hours | Antipyretics, antitussives | Delirium with psychotic features: restless with irrelevant speech, tremulousness, and a vibration like sensation in the body, confused, disoriented | No | No | 4 days | Withdrawal | 3 |
| Lertxundi, U., et al. [31] | CR | 1 | Man/38 | 1st day: 1000 mg; next days: 500 mg/day | Per os | Pneumonia | 3rd day | Escitalopram, valproic acid, pantoprazole, aripiprazole, clozapine,  oseltamivir | Delirium, visual hallucinations | Hepatitis C positive, relapsing-remitting multiple sclerosis, multiple infra- and supratentorial lesions | Schizoaffective disorder | 24 hours | Withdrawal | 3 |
| A. Pires, M., J. Mariz, et al. [32] | CR | 1 | Man/83 | 500 mg/day | ND | Urinary tract infection | 24 hours | Furosemide, metolazone, warfarin, candesartan, spironolactone, theophylline, pravastatin, sitagliptin, glipizide, mianserin | Psychosis, delirium, agitation, bizarre behavior, incoherent dialog, aggressive, insomnia, | Atrial fibrillation, heart failure, hypertension, type 2 diabetes mellitus, urinary retention | No | 48 hours | Withdrawal | 3 |
| Kocyigit, I., et al. [33] | CR | 1 | Man/55 | 500 mg/day | IV | Pneumonia | 6th day | 0,9% saline | Delirium with psychotic features: optic and acoustic hallucinations, hyperactivity, talking continuously | Renal dysfunction, essential hypertension, inguinal hernia surgery, tonsillectomy | No | 48 hours | Withdrawal | 3 |
| Kandasamy, A. and D. Srinath, et al. [34] | CR | 1 | Man/30 | 500 mg/day | Per os | Lower respiratory tract illness | 1st day | No | Insomnia, severe anxiety, irritable mood | ND | No | 1 day | Withdrawal | 3 |
| CR | 1 | Woman/30 | 500 mg/day | Per os | Lower respiratory tract illness | 1st day | No | Insomnia, anxiety | ND | No | 1 day | Withdrawal |  |
| CR | 1 | Man/32 | 750 mg/day | Per os | Lower respiratory tract illness | 1st day | No | Insomnia, restlessness | ND | No | 1 day | Withdrawal |  |
| LaSalvia, E.A., G.J. Domek, and D.F. Gitlin et al. [35] | CR | 1 | Man/75 | ND | ND | Postoperative high ostomy output and a wound infection | 12h after 3rd dose | Ampicillin, metronidazole, trimethoprim-sulfamethoxazole, allopurinol, enalapril, propranolol | Anhedonia, hopelessness, poor concentration, psycho-motor retardation, and suicidal ideation | Colorectal cancer (surgical resection and chemotherapy) | No | 4 days | Withdrawal, IV fluids | 3 |
| Slobodin, G., et al. [36] | CR | 1 | Man/83 | 500 mg/day | IV | Right lower lobe pneumonia | 3rd day | Amoxicillin/clavulanate, clarithromycin | Delirium, visual hallucinations | Ischemic heart disease, coronary artery bypass surgery, mild renal failure, breast carcinoma | No | 48 hours | Withdrawal | 3 |
| Moorthy, N., et al. [37] | CR | 1 | Man/50 | 500 mg/day | Per os | Persisting foot ulcer | 3rd day | Amoxicillin, clavulanic acid, insulin, enalapril, atorvastatin | Acute psychosis: restlessness, irrelevant speech, abusive, violence, visual hallucinations, insomnia | Uncontrolled diabetes mellitus, hypertension, community acquired hospital pneumonia | No | 48 hours | Withdrawal | 3 |
| Kiangkitiwan, B., et al. [38] | CR | 1 | Woman/42 | 500 mg/day | Per os | Sinusitis | 2nd day | Meclizine, guaifenesin/ phenylpropanolamine | Acute delirium with psychosis: insomnia, decreased appetite, restlessness, agitation, paranoia, visual and auditory hallucinations | Sinus and urinary tract infections | Second-degree relative with bipolar disorder | 24 hours | Withdrawal | 3 |
| Hakko, E., et al. [39] | CR | 1 | Man/73 | 500 mg/day | Per os | Community-acquired pneumonia | 2 days | Ceftriaxone | Delirium: disorientation, confusion, impaired attention capacity, hyperactive, talking continuously | ND | ND | 48 hours | Withdrawal | 3 |
| Yasuda, H., et al. [40] | CR | 1 | Man/67 | 300 mg/day | Per os | Upper respiratory infection | 4th day | Fulfenamic acid | Visual hallucinations | Gastrectomy, cholecystectomy | Minor alcoholism, age-related brain atrophy | 1 week | Withdrawal | 3 |
| **Ciprofloxacin** | | | | | | | | | | | | | | |
| Stroud, S.G. et al. [81] | CR | 1 | Woman/56 | 500 mg/day | ND | Chronic osteomyelitis, postoperative | Next day | Vancomycin, ceftriaxone, ertapenem, antipsychotics, oxycodone | Acute delirium: paranoid delusions, audiovisual hallucinations, near-catatonia | Hypertension, chronic kidney disease, left open femur and tibial plateau fractures with draining wounds | No | 2 days | Withdrawal (antipsychotics didn’t help) | 3 |
| Song, G., et al. [41] | CR | 1 | Man/39 | 400 mg/day | IV | Severe pulmonary infection | 2 days | Imipenem, vancomycin, meropenem, linezolid, caspofungin, piperacillin | Delirium: talkative, restless, and agitated, talking gibberish; suspected persecutory delusions, problems with sleeping | Aortic dissection, cardiac arrest, CPR, chronic hepatitis B, cerebrovascular disease | No | 1 week | Withdrawal, rehydration therapy, vitamin B6, quetiapine | 3 |
| Nazef, C. and A. Arif et al. [42] | CR | 1 | Man/24 | 1000 mg/day | ND | Gastroenteritis, colitis | 4 days | Metronidazole | Acute psychosis: auditory hallucinations, and suicidal ideations without intent or plan | No | Patient stated that he has had family members (paternal grandmother and uncle) with similar neurocognitive responses on ciprofloxacin therapy | 2 days | Withdrawal | 3 |
| Weir, R.A., et al. [43] | CR | 1 | Woman/52 | 500 mg/day | Per os | Bacteremia | 1 day | Cefepime | Profound psychosis and pseudobulbar affect: hallucinations, uncontrollable affect, paranoid delusions, vivid hallucinations, responding to internal stimuli, tremulousness, intact memory, attention, and orientation | End-stage renal disease secondary to poorly controlled hypertension and chronic NSAIDs use | ND | 4 days | Withdrawal, olanzapine | 3 |
| Rossi, G. and K. Mazoki et al. [44] | CR | 1 | Man/36 | 500 mg/day | Per os | Epididymitis | ND | ND | Acute paranoid psychosis: depression, anxiety, paranoia | No | Marijuana use | 5 days | Withdrawal | 3 |
| Ransing, R.S. and D. Sarkar et al. [45] | CR | 1 | Woman/14 | 200 mg/day | IV | Acute gastroenteritis | 2 days | IV fluids, antacids, probiotics | Mania: abnormal behavior, increased talkativeness, irritability, over demanding behavior, over familiarity, decreased need for sleep and elevated mood | ND | No | 4 days | Lorazepam | 3 |
| Dikici, S., et al. [46] | CR | 1 | Woman/82 | 1000 mg/day | ND | Urinary tract infection | Next day | No | Acute delirium with psychotic features: shouting, falling asleep, abusive speech, confusion, hallucinations | Hypertension | ND | 3 days | Withdrawal, quetiapine | 3 |
| Grimm, O. and B. Alm et al. [47] | CR | 1 | Woman/45 | 500 mg/day | Per os | Cystitis | 7th day | ND | Acute polymorphic psychosis: reference and persecutory delusions with formal thought disorder, auditory hallucinations, emotional lability, aggressiveness | ND | ND | 9 days | Aripiprazole | 3 |
| Dang, A., R. Kamat, and R.V. Padmanabh et al. [48] | CR | 1 | Woman/24 | 500 mg/day | Per os | Gastroenteritis | 2 days | ND | Nightmares, fear, anxiousness, and nervousness, mood changes, irritable | ND | ND | 1 day | Withdrawal | 3 |
| Jayathissa, S., et al. [49] | CR | 1 | Man/85 | 1000 mg/day | Per os | Infected right hip joint | 7th day | ND | Delirium, hallucinations | ND | ND | ND | Withdrawal, clonazepam | 3 |
| Ahmed, A.I., et al. [50] | CR | 1 | Man/53 | ND | ND | Recurrent prostatitis | 3 weeks | Amlodipine (later changed into rampipril) | Suicide attempt | Hypertension, surgery for a cervical hernia | 3 episodes of recurrent depression including with suicidal thoughts (each episode was preceded by 1-week treatment with ciprofloxacin); depressed mood for 1 year after the death of his wife (no suicidal thoughts) | 1 week | Withdrawal | 3 |
| Denysenko, L. and S.E. Nicolson et al. [51] | CR | 1 | Woman/60 | 400 mg/day | IV | Diverticular abscess | 1 day | Metoclopramide, morphine, midazolam, fentanyl, cefoxitin, metronidazole, cinacalcet, lorazepam | Delirium, catatonia | Hypertension, chronic renal insufficiency | Cocaine abuse in remission for 4 years, one untreated 2-week episode of “depression” and “very little talking”, delirium | 5 days | Withdrawal, lorazepam | 3 |
| Labay-Kamara, U., S. Manning, and T. McMahon et Al. [52] | CR | 1 | Man/26 | ND | ND | Colitis | 2nd day | Levofloxacin, metronidazole | Serious suicide attempt | No | No | 24 hours | Withdrawal, citalopram | 3 |
| Ben-Chetrit, E., N. Rothstein, and G. Munter et al. [53] | CR | 1 | Man/64 | ND | ND | COPD with infected bronchiectasis | 4th day | Cefuroxime, ramipril, ipratropium bromide inhaler | Acute psychosis: confusion, visual hallucinations | COPD, bronchiectasis, hypertension | ND | 24 hours | Withdrawal | 3 |
| Ranjan, A. and S.K. et al. [54] | CR | 1 | Woman/22 | 200 mg/day  (IV, 3 days)  500 mg/day  (per os, 3 days) | IV, per os | Acute gastroenteritis | ND | “Supportive treatment” | Acute psychosis: fearfulness, psychomotor retardation, visual and auditory hallucinations, poor self-care | ND | No | 2-3 days | Withdrawal | 3 |
| Dang, A., R. Kamat, and R.V et al. [55] | CR | 1 | Man/45 | 200 mg/day | ND | Urinary tract infection | Next day | No | Acute psychosis: delusional parasitosis, delusional beliefs, intensive visual hallucinations | Birth complications with asphyxia, cardiac surgery | An episode of depression after the divorce | 2 days | Withdrawal | 3 |
| Bhalerao, S., et al. [56] | CR | 1 | Man/28 | 800 mg/day for 5 days; 1000 mg/day on the 6th day | IV | Postoperative after ECRP stenting | 6th day | Sulfasalazine, metronidazole, cefazolin, gravol, ursodeoxycholic acid, folate, piperacillin-plus-tazobactam, thiamine, acyclovir | Delirium, mania episode | Primary sclerosing cholangitis, ulcerative colitis, ERCP stenting | No | 15 days | Withdrawal,  haloperidol, lorazepam, zopiclone, olanzapine | 3 |
| Norra, C., et al. [57] | CR | 1 | Woman/32 | 250 mg/day | Per os | Multidrug-resistant tuberculosis | 2 days | Isoniazid, ethambutol, pyrazinamide, rifampicin | Psychotic symptoms, optic and acoustic hallucinations | No | A brother who had committed suicide, another brother treated for schizophrenia; patient was in mourning after brother’s suicide | 48 hours | Withdrawal, haloperidol | 3 |
| Tripathi, A., S.I. Chen, and S. O'Sullivan et. Al. [58] | CR | 1 | Woman/27 | 1 drop/hour in each eye | Topic (eye drops) | Bacterial conjunctivitis | 2 hours | No | Psychosis: visual and auditory hallucinations, disorganization of speech, behavioral disturbances | No | No | 24-28 hours | Withdrawal | 3 |
| Al-Ghamdi, S.M. et. Al. [59] | CR | 1 | Woman/37 | 500 mg/day | ND | Urinary tract infection | 1 day | Saline hydration, potassium chloride | Delirium: irritable, confused, not recognizing family members, abnormal behavior, disorientated to time, place and person | Chronic pyelonephritis and recurrent struvite stones | No | 5 days | Withdrawal | 3 |
| Grassi, L., et al. [60] | CR | 1 | Woman/64 | 750 mg/day | Per os | COPD | 3 days | Prednisone, digoxin, amiloride hydrochloride, hydrochlorothiazide, ranitidine, inhalatory fluticasone propionate | Delirium: depressed mood, reduced ability to concentrate, impairment in short-term memory, perception disturbances (misperceptions, illusions, and fragmented auditory hallucinations) and thought disorders (paranoid thinking) | Frequent relapses of COPD | No | 3 days | Withdrawal,  lorazepam | 3 |
| James, E.A. and A.Z. Demian et al. [61] | CR | 1 | Man/31 | 800 mg/day | ND | Intestinal sepsis (peritoneal soiling) | 2 days | Piperacillin, gentamicin, vancomycin, metronidazole, fluconazole | Acute psychosis: paranoid delusions, visual hallucinations, behavioral disturbances | Gunshot in the stomach (underwent laparotomy) | No | 9 days | Withdrawal | 3 |
| Jay, G.T. and J. Fitzgerald et al. [62] | CR | 1 | Woman/76 | 1000 mg/day | ND | Urosepsis (presumptive diagnosis) | 36 hours | Oxybutynin, dicyclomine, imipramine, aspirin, betaxolol, pilocarpine eyedrops, baclofen, cholestyramine, ceftriaxone, gentamicin | Delirium | Paraplegic, chronic dermal ulcers, multiple rib/leg fractures, chronic indwelling catheter, osteomyelitis of the right foot, amputation above the right knee, colostomy, appendectomy | 5 days prior to the admission hospitalization with fever, mental status changes and abdominal pain | 3 days | Withdrawal, IV hydration | 3 |
| Mulhall, J.P. and L.S. Bergmann et al. [63] | CR | 1 | Woman/62 | 800 mg/ day, later switched to 1000 mg/day | IV, per os | Urinary tract infection | 3 days | No | Acute psychosis: agitation, hallucinations, paranoid delusions | Anaphylactic reaction to penicillin in the past, recurrent urinary tract infections, pyolithotomy | No | 36 hours | Withdrawal, haloperidol | 3 |
| Farrington, J., A. Stoudemire, and J. Tierney et al. [64] | CR | 1 | Woman/40 | ND | ND | Bacterial meningitidis | 4 days | Vancomycin, tobramycin, meperidine, oxycodone/acetaminophen, ceftazidime, droperidol, trimethoprim-sulfamethoxazole, metoclopramide and amitriptyline, famotidine, chlordiazepoxide, diazepam | Delirium, agitation, visual hallucinations, generalized tremulousness | L5-S1 laminectomy, psuedomeningocele, tonsillectomy | No | 3 days | Withdrawal, lorazepam, | 3 |
| Reeves, R.R. et al. [65] | CR | 1 | Man/49 | 500 mg/day | Per os | Prostatitis | 2nd day | No | Psychosis: paranoid delusions | Peptic ulcer disease, recurrent back pain | The patient had some paranoic traits but did not fulfilled criteria for any disorder | 3 days | Withdrawal, thiotixen | 3 |
| McCue, J.D. and J.R. Zandt et al. [66] | CR | 1 | Woman/76 | 750 mg/day | ND | Treated empirically because of a febrile | 4th day | Carbidopa-levodopa, trimethoprim-sulfamethoxazole | Acute psychosis: confusion, hyperactivity, fearfulness, paranoid behavior | A right hemiparesis from a stroke | Parkinson’s disease | 4 days | Withdrawal, haloperidol | 3 |
| **Ofloxacin** | | | | | | | | | | | | | | |
| Gautam, S.C., et al. [67] | CR | 1 | Woman/30 | 800 mg/day | ND | Urinary tract infection | 2,5 day | Flavoxate hydrogen chloride | Psychosis: increased psychomotor activity, increased volume and rate of speech, irritable mood, irrelevant thoughts, delusions, auditory hallucinations | Pulmonary tuberculosis | No | 24 hours | Withdrawal | 3 |
| Bhattacharya, A., et al. [68] | CR | 1 | Woman/4 | 140 mg/day  IV for 2-3 days; 800 mg/day per os the next day | IV, per os | Acute gastroenteritis | 1 day after the dose of 800 mg | Ondansetron,  IV fluids | Delirium, bimodal hallucinatory psychosis: tactile and visual hallucinations | No | No | 72 hours | Withdrawal, olanzapine | 3 |
| Chauhan, U., et al. [69] | CR | 1 | Woman/5 | 100 mg/day | Per os | Gastroenteritis | 3 days | Sodium valproate, lamotrigine, ornidazole, ondansetron | Visual hallucinations | Seizure disorder (seizure- free for the past 1 year) | ND | 24 hours | Withdrawal | 3 |
| Koul, S., et al. et al. [70] | CR | 1 | Woman/18 | 800 mg/day | ND | Urinary tract infection | 2 days | Co-amoxiclav, metronidazole | Psychosis: paranoid delusions, delusions of reference and control, third person auditory hallucinations, suicidal ideation, tearfulness, psychomotor retardation, psychomotor agitation | ND | No | 4 days | Withdrawal | 3 |
| Guven, E.O., et al. [71] | CR | 1 | Man/75 | 400 mg/day | ND | Postoperative after trans vesical prostatectomy | 24-48 hours | No | Psychosis: disorientation, hallucination, disorientation, echolalia, echopraxia, swearing, hypersalivation, inability to swallow, cogwheel rigidity, blurring of consciousness, hyper irritative answer to vocal stimulation | ND | ND | 48 hours | Withdrawal | 3 |
| CR | 1 | Woman/50 | 400 mg/day | IV | Acute pyelonephritis | 3rd day | “Supportive therapy” | Psychosis: disorientation, hallucinations | ND | ND | 24 hours | Withdrawal | 3 |
| Hall, C.E., et al. [72] | CR | 1 | Woman/32 | 800 mg/day | ND | Pelvic inflammatory disease | A few hours after 1st dose | Doxycycline, metronidazole, | Psychosis; nihilistic delusions, psychotic anxiety, panic attack | Gastro-esophageal reflux disease, irritable bowel syndrome | A moderate depressive disorder, panic disorder requiring antidepressant therapy | 48 hours | Withdrawal | 3 |
| **Moxifloxacin** | | | | | | | | | | | | | | |
| Gautam, S.C., et al. [67] | CR | 1 | Woman/30 | 800 mg/day | ND | Urinary tract infection | 2,5 day | Flavoxate hydrogen chloride | Psychosis: increased psychomotor activity, increased volume and rate of speech, irritable mood, irrelevant thoughts, delusions, auditory hallucinations | Pulmonary tuberculosis | No | 24 hours | Withdrawal | 3 |
| Bhattacharya, A., R. et al. [68] | CR | 1 | Woman/4 | 140 mg/day  IV for 2-3 days; 800 mg/day per os the next day | IV, per os | Acute gastroenteritis | 1 day after the dose of 800 mg | Ondansetron,  IV fluids | Delirium, bimodal hallucinatory psychosis: tactile and visual hallucinations | No | No | 72 hours | Withdrawal, olanzapine | 3 |
| Chauhan, U., P. et al. [69] | CR | 1 | Woman/5 | 100 mg/day | Per os | Gastroenteritis | 3 days | Sodium valproate, lamotrigine, ornidazole, ondansetron | Visual hallucinations | Seizure disorder (seizure- free for the past 1 year) | ND | 24 hours | Withdrawal | 3 |
| Koul, S., et al. [70] | CR | 1 | Woman/18 | 800 mg/day | ND | Urinary tract infection | 2 days | Co-amoxiclav, metronidazole | Psychosis: paranoid delusions, delusions of reference and control, third person auditory hallucinations, suicidal ideation, tearfulness, psychomotor retardation, psychomotor agitation | ND | No | 4 days | Withdrawal | 3 |
| Guven, E.O., et al. [71] | CR | 1 | Man/75 | 400 mg/day | ND | Postoperative after trans vesical prostatectomy | 24-48 hours | No | Psychosis: disorientation, hallucination, disorientation, echolalia, echopraxia, swearing, hypersalivation, inability to swallow, cogwheel rigidity, blurring of consciousness, hyper irritative answer to vocal stimulation | ND | ND | 48 hours | Withdrawal | 3 |
| CR | 1 | Woman/50 | 400 mg/day | IV | Acute pyelonephritis | 3rd day | “Supportive therapy” | Psychosis: disorientation, hallucinations | ND | ND | 24 hours | Withdrawal | 3 |
| Hall, C.E., et al. [72] | CR | 1 | Woman/32 | 800 mg/day | ND | Pelvic inflammatory disease | A few hours after 1st dose | Doxycycline, metronidazole, | Psychosis; nihilistic delusions, psychotic anxiety, panic attack | Gastro-esophageal reflux disease, irritable bowel syndrome | A moderate depressive disorder, panic disorder requiring antidepressant therapy | 48 hours | Withdrawal | 3 |
| Moxifloxacin | | | | | | | | | | | | | | |
| Uz, B., et al. [73] | CR | 1 | Woman/66 | 400 mg/day | Per os | Left lobar pneumonia | 6,5 hours | Erdosteine, paracetamol, amlodipine, acetylsalicylic acid | Complex visual hallucinations, logorrhea, euphoria, behavioral changes | Essential hypertension, osteoporosis | No | 36 hours | Withdrawal | 3 |
| Higdon, E., et al. [74] | CR | 1 | Woman/24 | 400 mg/day | IV | Severe sepsis secondary to community-acquired pneumococcal pneumonia | 2 days | Hydroxy- chloroquine, prednisone, vancomycin, piperacillin/tazobactam, ciprofloxacin, ceftriaxone | Visual hallucinations | Systemic lupus erythematosus | No | 1 day | Withdrawal | 3 |
| Mazhar, F., et al. [75] | CR | 1 | Man/40 | 400 mg/day | Per os | Acute bronchitis | 72 hours | Paracetamol | Acute psychosis: persistent insomnia and impaired visual and auditory perception, awareness of unreality | No | No | 12 hours | Withdrawal | 3 |
| Karagoz, E., et al., [76] | CR | 1 | Woman/60 | 400 mg/day | IV | Atypical pneumonia | 1 hour after 2nd dose | Amoxicillin-clavulanate | Acute delirium: visual hallucinations, apathic behaviors, inability to remember her family members, irrelevant talk, pressured speech, loose associations | ND | ND | 3 days | Withdrawal, Quetiapine | 3 |
| Pepele, M.S., et al. [77] | CR | 1 | Woman/65 | 400 mg/day | Per os | COPD | 2 hours | Acetylcysteine | Visual hallucinations | COPD | No | 6 hours | Withdrawal | 3 |
| Tasleem, H. et al. [78] | CR | 1 | Woman/70 | 400 mg/day | IV, per os | Streptococcus pneumonia, bacteremia, urinary tract infection, colitis | 7th day of  the treatment; the same day as oral dose | Prednisone, hydralazine, clonidine, metoprolol, zolpidem, levothyroxine, furosemide, cyclosporine, levofloxacin, metronidazole, filgrastim, vancomycin | Delirium with visual hallucinations | Hypertension, coronary artery disease, renal transplantation, COPD, hypothyroidism, excision of squamous cell carcinoma on both shins | Daily marijuana use | 1 day | Withdrawal | 3 |
| **Gemifloxacin** | | | | | | | | | | | | | | |
| Sharma, D.D., et al. [79] | CR | 1 | Woman/36 | 320 mg/day | ND | Upper respiratory tract infection | 1st day | Loratadine | Acute dystonia, difficulty in sleeping, restlessness | No | No | 5-10 minutes after promethazine administration | Withdrawal, promethazine | 3 |
| Barrett, M.J. et al. [80] | CR | 1 | Woman/67 | 320 mg/day | Per os | Upper respiratory tract infection (suspected) | 0,5 hour – 1 day | No | Acute alteration in mental status: dysphasic, unable to follow commands, agitated | No | No | 2 days | Withdrawal | 3 |