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| **Additional file 2: Description of studies** | | | | | | | | |
| Study | Reference | Design | Duration | N | Drug and dose | Patients | Diagnostic criteria | Age |
| [1](#_ENREF_1) | Kahn RS  2008 | Open-RCT | 1 year | 222 | haloperidol 1–4 mg, amisulpride 200–800 mg, olanzapine 5–20 mg, quetiapine 200–750 mg, or ziprasidone 40–160 mg. | schizophrenia, schizophreniform disorder or schizoaffective disorder(episode**)** | DSM-IV-TR | 18–40 |
| [2](#_ENREF_2) | Didier M 2010 | RCT(DB) | 6 weeks | 341 | quetiapine XR 600 mg/day; placebo | acute schizophrenia | DSM-IV | 18–65 |
| [3](#_ENREF_3) | Canuso CM 2010 | RCT(DB) | 6 week | 215 | paliperidone ER 6 mg/d; placebo | schizophrenia disorder | DSM-IV | 18-65 |
| [4](#_ENREF_4) | Bushe C 2010 | Open-RCT | six-month | 303 | olazapine 10–20 mg/day); quetiapine 300–700 mg/day | schizophrenia or schizoaffective disorder | DSM-IV | 41(9) |
| [5](#_ENREF_5) | Perez R 2009 | RCT(DB) | 1 year | 164 | haloperidol,10–20 mg/day; olanzapine 5–20 mg/day; risperidone 3–6 mg/day | psychotic disorder, schizophreniform disorder, schizophrenia, or schizoaffective disorder | DSM-IV | 27.0 (6.9) |
| [6](#_ENREF_6) | Krakowski M 2009 | RCT(DB) | 12 week | 87 | clozapine 3–9 mg/day; olanzapine 5–20 mg/day; risperidone 3–6mg/day . | schizophrenia or schizoaffective disorder | DSM-IV | 35.2(11.8) |
| [7](#_ENREF_7) | Ingole S 2009 | Open-RCT | 12 week | 60 | olanzapine 5mg/day; risperidone 3 mg/day | newly diagnosed | DSM-IV | 18–60 |
| [8](#_ENREF_8) | Hatta K 2009 | RCT(DB) | 8 week | 78 | risperidone 3mg/d;quetiapine 300mg/d; olanzapine 10mg/day;aripiprazole12 mg/day | acute-phase schizophrenia | ICD-10 | 18–64 |
| [9](#_ENREF_9) | Saddichha S 2008 | RCT(DB) | 6 week | 99 | olanzapine 16.5 ± 4.6 mg; haloperidol 13.4±3.6 mg;risperidone4.4±1.2 mg | first-episode schizophrenia | DSM-IV | 26.06±5.57 |
| [10](#_ENREF_10) | Meyer JM 2008 | RCT(DB) | 3 month | 226 | olanzapine 20.1mg/d; quetiapine 543.4mg/d; risperidone 3.9mg/d; ziprasidone 112.8mg/d | schizophrenia | n.i. | 18-65 |
| [11](#_ENREF_11) | Wu RR 2007 | Open-RCT | 8 week | 83 | clozapine (200–400mg/d);olanzapine (10–20mg/d); risperidone (2–5mg/d) | First-Episode Schizophrenia | DSM-IV | 18 to 45 |
| [12](#_ENREF_12) | McEvoy JP 2007 | RCT(DB) | 52-week | 267 | olanzapine 2.5–20 mg/day; quetiapine 100–800 mg/day; risperidone 0.5-4mg/day | Early Psychosis | DSM-IV | 16–40 |
| [13](#_ENREF_13) | Marder SR 2007 | RCT(DB) | 6 week | 285 | paliperidone ER 6 mg; placebo;olanzapine 10mg | acute episode of schizophrenia | DSM-IV | 41.6 |
| [14](#_ENREF_14) | Kane J 2007 | RCT(DB) | 6 week | 362 | paliperidone ER 9mg ; placebo; olanzapine 10mg once daily | acute episode | DSM-IV | 37.1±10.9 |
| [15](#_ENREF_15) | Davidson M 2007 | RCT(DB) | 6 week | 348 | paliperidone ER 9mg ; placebo; olanzapine 10mg | acute episode of schizophrenia, | DSM-IV | 37 |
| [16](#_ENREF_16) | Wu RR 2006 | RCT | 8 weeks | 83 | clozapine 200–400 mg/day;olanzapine10–20 mg/day; risperidone (2–5 mg/day) | first-episode schizophrenia | DSM-IV | 33 |
| [17](#_ENREF_17) | Vanelle JM 2006 | RCT(DB) | 8 weeks | 85 | amisulpride (200–600 mg/day);olanzapine (5–15 mg/day) | schizophrenia and presenting a depressive episode | DSM-IV | M:32.6±7.9；  F:36.5±8.0 |
| [18](#_ENREF_18) | Kinon BJ 2006 | RCT(DB) | 24 week | 207 | olanzapine10, 15, or 20 mg/d; ziprasidone | Schizophrenia or Schizoaffective Disorder | DSM-IV | 18-60 |
| [19](#_ENREF_19) | Chiu CC 2006 | Open-RCT | 2 week | 26 | olanzapine(10mg/d);risperidone2 mg/d | Atypical-naıve Schizophrenic | DSM-IV | 37.3 ± 8.3 |
| [20](#_ENREF_20) | Schoemaker J 2010 | RCT(DB) | 52 week | 1219 | asenapine5-10mg;olanzapine 10-20mg | schizophrenia or schizoaffective disorder | DSM-IV | M：36.8； F:36.2 |
| [21](#_ENREF_21) | Canuso CM 2010 | RCT(DB) | 6 week | 311 | paliperidone ER 3-12 mg/d; placebo | Schizoaffective Disorder | DSM-IV | 37.6 (9.2) |
| [22](#_ENREF_22) | Kumra S 2008 | Open-RCT | 12 week | 39 | Clozapine 403.1mg/d; olanzapine 26.2mg/d | schizophrenia, schizoaffective disorder | Kiddie-SADS | 15.6 |
| [23](#_ENREF_23) | Chan H 2007 | RCT(DB) | 4 week | 83 | Aripiprazole 15mg;Risperidone 6 mg | acute treatment of schizophrenia | DSM-IV | 35.2 |
| [24](#_ENREF_24) | Kane JM 2009 | RCT(DB) | 28 week | 566 | n.i. | schizophrenia | DSM-IV | 18-65 |
| [25](#_ENREF_25) | Newcomer JW 2009 | Open-RCT | 24 week | 393 | olanzapine 15.2mg/day; quetiapine 607.0mg/day; risperidone 5.2mg/day | schizophrenia | DSM-IV | 18-65 |
| [26](#_ENREF_26) | Wani RA 2015 | Open-RCT | 24 week | 47 | olanzapine 10–20mg/day; aripiprazole 5mg/day | schizophrenia | DSM-IV | M：29.84 (5.24);  F：29.71 (5.00) |
| [27](#_ENREF_27) | Bobo WV 2011 | Open-RCT | 6 month | 54 | olanzapine 5–20mg/day; Risperidone 2-6mg/day | schizophrenia, schizoaffective disorder or bipolar disorde | DSM-IV | 40.7(10.7) 40.4(11.1) |
| [28](#_ENREF_28) | Hert MD 2010 | Open-RCT | 24 week | 131 | Sertindole 12mg;Risperidone 4mg | schizophrenia | DSM-IV | 18-66 |
| [29](#_ENREF_29) | Smith RC 2009 | Open-RCT | 5 month | 46 | olanzapine 25.2mg/d; Risperidone 6.1mg/d | schizophrenia or pyschosis | DSM-IV | 41.22(7.2) ; 42.52(9.0) |
| [30](#_ENREF_30) | Hu S 2013 | Open-RCT | 12 week | 56 | paliperidone ER 7.55±2.27mg/day; olanzapine 15.87±3.34mg/day | schizophrenia | DSM-IV | 18–45 |
| [31](#_ENREF_31) | Grootens KP 2011 | RCT(DB) | 8-week | 61 | ziprasidone 80–160 mg/d; olanzapine 10–20 mg/d | schizophrenia, schizoaffective disorder, or schizophreniform disorder | DSM-IV | 18–40 |
| [32](#_ENREF_32) | Kelly DL 2003 | RCT | 8 weeks | 13 | clozapine 450 mg/day; olanzapine 50 mg/day | Treatment-Resistant Schizophrenia | DSM-IV | ni. |
| [33](#_ENREF_33) | Lindenmayer JP 2003 | RCT | 14-week | 73 | clozapine 500 mg/ day; olanzapine 20 mg/day; risperidone 8 mg/day; haloperidol 20 mg/day | schizophrenia or schizoaffective disorder | DSM-IV | n.i. |
| [34](#_ENREF_34) | Breier A 2005 | RCT(DB) | 28 weeks | 447 | ziprasidone 129.9±27.3 mg/day; olanzapine 11.3±2.8 mg/day | schizophrenia | DSM-IV | 18–75 |
| [35](#_ENREF_35) | Coppola D 2011 | RCT(DB) | 6-week | 116 | Paliperidone ER 1.5 mg; placebo | schizophrenia | DSM-IV | ≥18 |
| [36](#_ENREF_36) | Hardy TA 2011 | RCT | 12 weeks | 74 | olanzapine 5–20 mg; risperidone 4-10mg/d; | schizophrenia or schizoaffective disorder | n.i. | 18–65 |
| [37](#_ENREF_37) | De Hert M 2011 | Open-RCT | 12 weeks | 159 | sertindole 12 mg/d; risperidone 4mg/d | schizophrenia | n.i. | 18-65 |
| [38](#_ENREF_38) | Meltzer HY 2011 | RCT(DB) | 6 weeks | 354 | lurasidone 40 mg/d; olanzapine 15 mg/d | Schizophrenia, Schizoaffective Disorder and Schizophreniform Disorder | DSM-IV | 18–75 |
| [39](#_ENREF_39) | Potkin SG 2011 | RCT(DB) | 3-week | 270 | lurasidone 120mg once daily; ziprasidone 160 mg/day | chronic schizophrenia or schizoaffective disorder | DSM-IV | 18-70 |
| [40](#_ENREF_40) | Citrome L 2012 | RCT(DB) | 12 month | 525 | lurasidone 40 and 120mg/day; risperidone 2-6 mg/day | schizophrenia or schizoaffective disorder | DSM-IV | 18–75 |
| [41](#_ENREF_41) | Kaushal J 2010 | Open-RCT | 8 weeks | 60 | olanzapine 5 mg/d; risperidone 2 mg /d | schizophrenia, schizophreniform disorder or schizo-affective disorder | ICD-10 | 16–40 |
| [42](#_ENREF_42) | Jindal KC 2013 | RCT(DB) | 6 weeks | 60 | aripiprazole 12.5(2.55) mg; olanzapine 11.01(2.12) mg | schizophrenia | ICD-10 | 18-65 |
| [43](#_ENREF_43) | Ou JJ 2013 | RCT | 6-week | 255 | ziprasidone 138.2(28.6)mg/d; olanzapine19.0(2.3)mg/d | first-episode schizophrenia | DSM-IV | 18-45 |
| [44](#_ENREF_44) | Di FM 2014 | Open-label | 12-week, | 210 | quetiapine XR 400-800 mg/day); risperidone 4-6 mg/day | schizophrenia or schizoaffective disorder | DSM-IV | 18–65 years |
| [45](#_ENREF_45) | Kane JM 2014 | RCT(DB) | 12 weeks | 339 | aripiprazole once-monthly 400 mg; placebo | acute treatment of schizophrenia | DSM-IV-TR | 18-65 |
| [46](#_ENREF_46) | Robinson DG 2015 | RCT | 12 weeks | 198 | aripiprazole 5–30 mg/d; risperidone 1–6 mg/d | First-Episode Schizophrenia and Related Disorders | DSM-IV | 15–40 |
| [47](#_ENREF_47) | Nakamura M 2009 | RCT(DB) | 6 week | 144 | lurasidone 80mg/d; placebo | acute schizophrenia | DSM-IV | 30 - 50 |

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