**Supplementary Table S1: search performed in Pubmed and Embase**
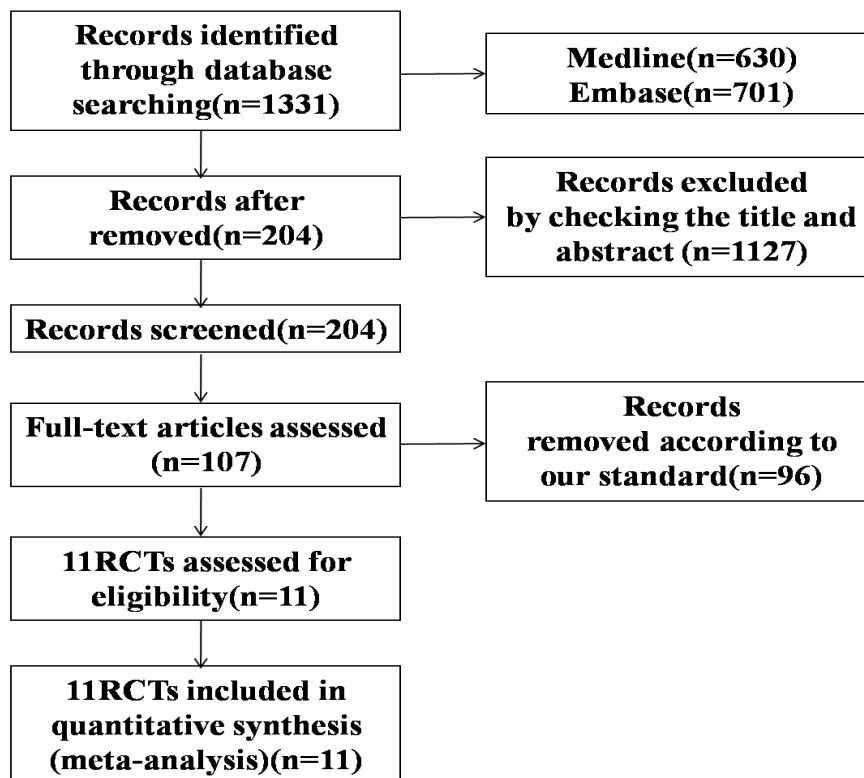
| | *PubMed* | |
|---|---|---|
| *#1* | (((((((((Neoplasms) OR Neoplasia) OR Neoplasias) OR Neoplasm) OR Tumors) OR Tumor) OR Malignancy) OR Malignancies) OR Cancer) OR Cancers | *4020910* |
| *#2* | (((((((((PD-L1) OR PDCD1LG1 protein) OR programmed cell death 1 ligand 1 protein) OR CD274 antigen) OR B7-H1 protein) OR B7H1 protein) OR PD-L1 protein) OR PDL1 protein)) OR (((((((((((((Programmed Cell Death 1 Receptor) OR PD-1) OR PD-1 Receptor) OR PD 1 Receptor) OR Receptor, PD-1) OR CD279 Antigen) OR Antigen, CD279) OR PD1 Receptor) OR Receptor, PD1) OR Programmed Cell Death 1 Protein) OR Antigens, CD279) OR CD279 Antigens)) | *9492* |
| *#3* | ((((((((((((((((((((((((((Consolidation Chemotherapy) OR Chemotherapies, Consolidation) OR Chemotherapy, Consolidation) OR Consolidation Chemotherapies) OR Maintenance Chemotherapy) OR Chemotherapies, Maintenance) OR Chemotherapy, Maintenance) OR Maintenance Chemotherapies) OR Antineoplastic Combined Chemotherapy Protocols) OR Combined Antineoplastic Agents) OR Antineoplastic Agents, Combined) OR Agent, Combined Antineoplastic) OR Agents, Combined Antineoplastic) OR Antineoplastic Agent, Combined) OR Combined Antineoplastic Agent) OR Antineoplastic Combined Chemotherapy Regimens) OR Drug Combinations, Antineoplastic) OR Anticancer Drug Combinations) OR Anticancer Drug Combination) OR Drug Combination, Anticancer) OR Drug Combinations, Anticancer) OR Antineoplastic Drug Combinations) OR Antineoplastic Drug Combination) OR Combinations, Antineoplastic Drug) OR Drug Combination, Antineoplastic) OR Antineoplastic Chemotherapy Protocols) OR Antineoplastic Chemotherapy Protocol) OR Chemotherapy Protocol, Antineoplastic) OR Protocol, Antineoplastic Chemotherapy) OR Protocols, Antineoplastic Chemotherapy) OR Cancer Chemotherapy Protocols) OR Cancer Chemotherapy Protocol) OR Chemotherapy Protocol, Cancer) OR Chemotherapy Protocols, Cancer) OR Protocol, Cancer Chemotherapy) OR Protocols, Cancer Chemotherapy) OR Chemotherapy Protocols, Antineoplastic)) or (((((((((Docetaxel) OR dox) OR docetaxel hydrate) OR docetaxel trihydrate) OR docetaxol) OR Taxotere)) OR (((((((Dacarbazin) OR Dacarbazin Dimethyl Imidazole Carboxamide) OR Carboxamide, Dimethyl Imidazole) OR Imidazole Carboxamide, Dimethyl) OR DTIC) OR ICDT) OR Decarbazine)) OR ((((((Platinum) OR Platinum Diamminodichloride,) OR Diamminodichloride) OR Platinum) OR cis-Platinum) OR cis Platinum)) OR (((((((Carboplatin) OR Carbosin) OR Carbotec) OR Paraplatin) OR Carboplat)) OR cbp) | *191553* |
| *#4* | (((((((((randomized controlled trail) OR controlled clinical trail) OR randomized) OR placebo) OR drug therapy) OR randomly) OR trail) OR group)) | *5667922* |
| *#5* | #1 AND #2 AND #3 AND #4<br><br>#1 AND #2 AND #4 | *Final search*<br>*630*<br>*1807* |
| | *EMBASE* | |
| *#1* | acral AND ('tumor'/exp OR tumor) OR 'neoplasms'/exp OR neoplasms OR (acral AND ('tumour'/exp OR tumour)) OR (('neoplasms'/exp OR neoplasms) AND by AND histologic AND type) OR (neoplasms, AND cystic, AND mucinous, AND serous) OR (neoplasms, AND embryonal AND mixed) OR (neoplasms, AND ('germ'/exp OR germ) AND ('cell'/exp OR cell) AND embryonal;) OR (neoplasms, AND glandular AND epithelial;) OR (neoplasms, AND 'hormone dependent;') OR (neoplasms, AND 'post traumatic') OR (neoplastic AND ('disease'/exp OR disease)) OR 'tumor'/exp OR tumor OR 'tumour'/exp OR tumour | *4753260* |
| *#2* | 'pd 1'/exp OR 'pd 1' OR (('antigen'/exp OR antigen) AND cd279) OR (cd279 AND ('antigen'/exp OR antigen)) OR (('pd'/exp OR pd) AND 1 AND ('protein'/expORprotein)) OR (pdcd1 AND ('protein'/exp OR protein)) OR (programmed AND ('cell'/exp OR cell) AND ('death'/exp OR death) AND 1 AND ('protein'/exp OR protein)) OR (programmed AND ('cell'/exp OR cell) AND ('death'/exp OR death) AND 1 AND ('receptor'/exp OR receptor)) OR (programmed AND ('cell'/exp OR cell) AND ('death'/exp OR death) AND ('protein'/exp OR protein) AND 1) OR (programmed AND ('death'/exp OR death) AND 1 AND ('protein'/exp OR protein)) OR (programmed AND ('death'/exp OR death) AND ('protein'/exp OR protein) AND 1) OR (('protein'/exp OR protein) AND ('pd'/exp OR pd) AND 1) OR (('protein'/expORprotein) AND pdcd1) OR (('protein'/exp OR protein) AND programmed AND ('cell'/exp OR cell) AND ('death'/exp OR death) AND 1) OR (('protein'/exp OR protein) AND programmed AND ('death'/exp OR death) AND 1) | *71159* |
| *#3* | 'chemotherapy'/exp OR chemotherapy OR (anticancer AND ('chemotherapy'/exp OR chemotherapy)) OR (antineoplastic AND ('chemotherapy'/exp OR chemotherapy)) OR 'carcinochemotherapy'/exp OR carcinochemotherapy OR 'cancer combination chemotherapy'/exp OR 'cancer combination chemotherapy' OR (('tumor'/exp OR tumor) AND ('chemotherapy'/exp OR chemotherapy)) OR (('tumour'/exp OR tumour) AND ('chemotherapy'/exp OR chemotherapy)) | *822854* |

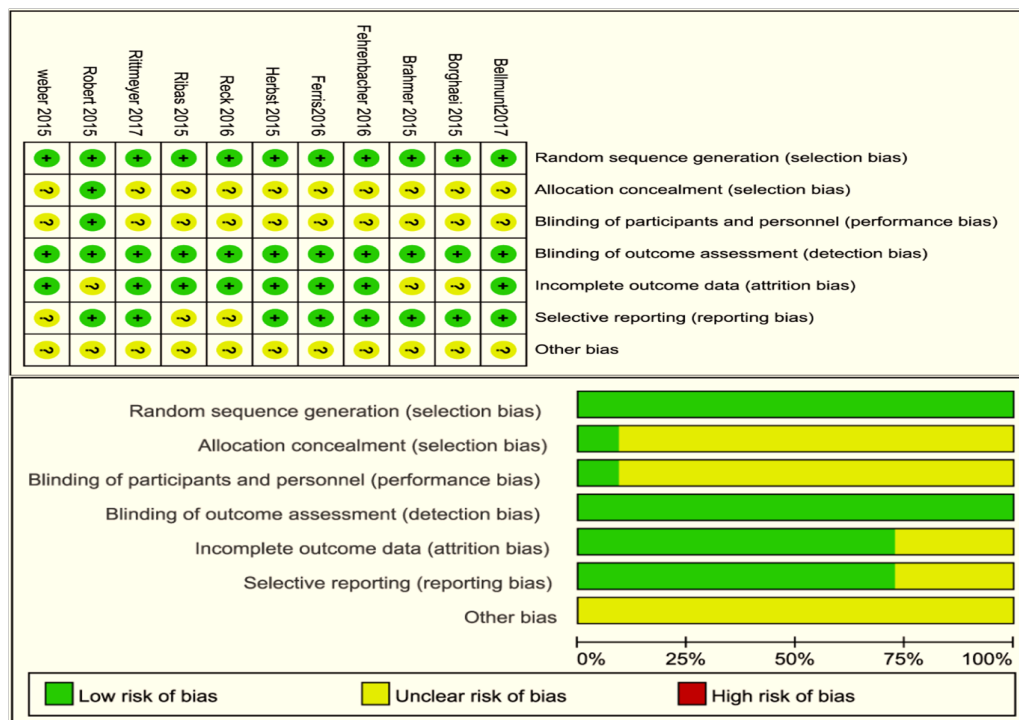| #4 | 'colitis'/exp OR colitis OR (('colon'/exp OR colon) AND ('inflammation'/exp OR inflammation)) OR (('colon'/exp OR colon) AND inflammatory AND ('disease'/exp OR disease)) OR (inflammation, AND ('colon'/exp OR colon)) OR (segmental AND ('colitis'/exp OR colitis)) 224509 OR 'diarrhea'/exp OR diarrhea OR (diarrhea, AND toxic) OR 'diarrhoea'/exp OR diarrhoea OR (diarrhoea, AND toxic) OR (postoperative AND ('diarrhea'/expORdiarrhea)) OR (postoperative AND ('diarrhoea'/exp OR diarrhoea)) OR scour; OR (toxic AND ('diarrhea'/exp OR diarrhea)) OR (toxic AND ('diarrhoea'/expORdiarrhoea)) | *451648* |
|---|---|---|
| #5 | #1 AND #2 AND #3and #4 | *Final search 701* |

**Supplementary Table S2: the grade of colitis and diahrrea according to Common Terminology Criteria for Adverse Events (CTCAE Version 4.0)**

| adverse event | Grade 1 | Grade 2 | Grade 3 | Grade 4 | Grade 5 |
|---|---|---|---|---|---|
| **colitis** | Asymptomatic;clinical or diagnostic observations only; intervention not indicated | Abdominal pain; mucus or blood in stool | Severe abdominal pain; change in bowel habits; medical intervention indicated;peritoneal signs | Life-threatening consequences;urgent intervention indicated | death |
| **diahrrea** | Increase of <4 stools per day over baseline; mild increase in ostomy output compared to baseline | Increase of 4 - 6 stools per day over baseline; moderate increase in ostomy output | Increase of >=7 stools per day over baseline; incontinence;hospitalization indicated; severe increase in ostomy output compared to baseline; | Life-threatening consequences;urgent intervention indicated | death |

**Supplementary Figure S1: Flowchart depicting the RCTs selection process.**



**Supplementary Figure S2**: **Risk of bias summary.**



(**A**): Bar chart comparing the percentage risk of bias for each included RCT. Low risk of bias (Green), high risk of bias (Red), and unclear risk of bias (Yellow). (**B**): Risk of bias for each included RCT, representing low risk of bias (+), high risk of bias (-), and unclear risk of bias (?).

**Supplementary Table S3: Evaluation of publication bias in the PD1 group with Begg's and Egger's tests**

|  | Trails | Heterogeneity | | RR（95%CI） | Begg's test | | Egger's test | |
|---|---|---|---|---|---|---|---|---|
|  |  | P | I$^2$ |  | Z | P | T | P |
| Diarrhea(G1-5) | 9 | 0.001 | 66.6% | 0.58(0.42,0.79) | 0.62 | 0.53 | 1.02 | 0.34 |
| Diarrhea(G3-5) | 9 | 0.268 | 18.4% | 0.53(0.25,1.14) | 0.78 | 0.43 | -1.39 | 0.19 |
| Colitis(G1-5) | 9 | 0.896 | 0% | 2.69(1.15,6.29) | 0.31 | 0.76 | 0.64 | 0.54 |
| Colitis(G3-5) | 9 | 0.991 | 0% | 2.53(0.96,6.68) | 0.89 | 0.37 | 0.14 | 0.89 |

**G1-5:** grade1-5; **G3-5:** grade3-5.

**Supplementary Table S4: Sensitivity analysis**

4.1. Sensitivity analysis for diarrhea (Grade1-5) in patients treated with **PD-1 inhibitor** versus chemotherapy

| removed Study | Trails | Heterogeneity | | RR（95%CI） | P |
| | | P | I$^2$ | | |
| --- | --- | --- | --- | --- | --- |
| weber[2015] | 8 | 0.001 | 69.50% | 0.57(0.40-0.80) | 0.001 |
| Reck[2016] | 8 | 0.003 | 64.20% | 0.54(0.40-0.75) | <0.001 |
| **Robert[2015]** | **8** | **0.01** | **58.40%** | **0.54(0.40-0.73)** | **<0.001** |
| Ribas [2015] | 8 | 0.001 | 69.90% | 0.55(0.40-0.77) | <0.001 |
| Borghaei[2015] | 8 | 0.006 | 61.10% | 0.62(0.45-0.85) | 0.003 |
| Brahmer[2015] | 8 | 0.001 | 66.90% | 0.61(0.44-0.84) | 0.003 |
| Herbst et al. [2015] | 8 | 0.004 | 65.00% | 0.65(0.47-0.91) | 0.012 |
| Bellmunt[2017] | 8 | 0.001 | 69.40% | 0.56(0.40-0.80) | 0.002 |
| Ferris[2016] | 8 | 0.001 | 69.70% | 0.58(0.42-0.83) | 0.002 |

4.2. Sensitivity analysis for diarrhea (Grade1-5) in patients treated with **pembrolizumab** versus chemotherapy

| removed Study | Trails | Heterogeneity | | RR（95%CI） | P |
| | | P | I$^2$ | | |
| --- | --- | --- | --- | --- | --- |
| Ribas [2015] | 3 | 0.013 | 72.30% | 0.55(0.32-0.95) | 0.033 |
| **Herbst et al. [2015]** | **3** | **0.37** | **4.50%** | **0.85(0.61-1.19)** | **0.351** |
| Bellmunt[2017] | 3 | 0.009 | 70.70% | 0.60(0.33-1.09) | 0.094 |

4.3. Sensitivity analysis for diarrhea (Grade1-5) in patients treated with **nivolumab** inhibitor versus chemotherapy therapy
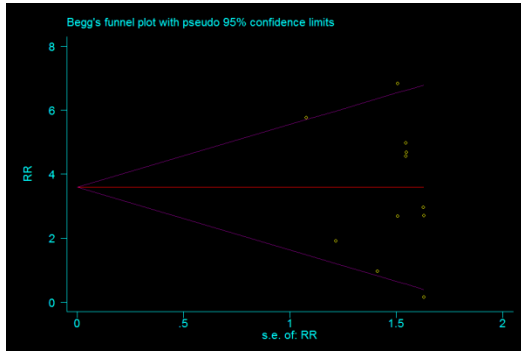
| removed Study | Trails | Heterogeneity | | RR（95%CI） | P |
| | | P | I$^2$ | | |
| --- | --- | --- | --- | --- | --- |
| **Robert[2015]** | **4** | **0.201** | **35.10%** | **0.45(0.31-0.63)** | **<0.001** |
| Borghaei[2015] | 4 | 0.032 | 65.90% | 0.62(0.38-1.01) | 0.058 |
| Brahmer[2015] | 4 | 0.004 | 77.40% | 0.60(0.35-1.03) | 0.062 |
| Ferris[2016] | 4 | 0.001 | 80.80% | 0.55(0.31-0.99) | 0.045 |

4.4. Sensitivity analysis for diarrhea(G1-5) in patients of **NSCLC** treated with **PD1/PD-L1** inhibitor versus chemotherapy therapy
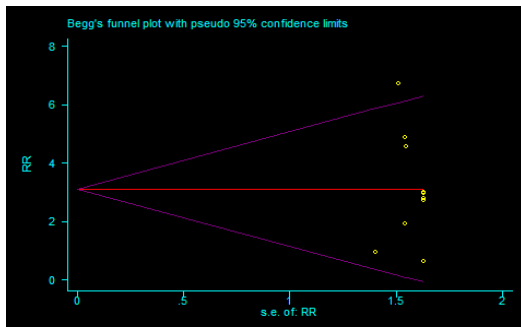
| removed Study | Trails | Heterogeneity | | RR（95%CI） | P |
| | | P | I$^2$ | | |
| --- | --- | --- | --- | --- | --- |
| **Reck[2016]** | **5** | **0.041** | **0.569** | **0.39(0.29-0.54)** | **<0.001** |
| Borghaei[2015] | 5 | 0.009 | 67.60% | 0.47(0.32-0.69) | <0.001 |
| Brahmer[2015] | 5 | 0.004 | 71.50% | 0.46(0.32-0.67) | <0.001 |
| Herbst et al. [2015] | 5 | 0.004 | 73.70% | 0.49(0.32-0.74) | 0.001 |
| Fehrenbacher[2016] | 5 | 0.005 | 70.50% | 0.47(0.33-0.67) | <0.001 |
| Rittmeyer[2017] | 5 | 0.019 | 63.00% | 0.41(0.28-0.61) | <0.001 |

**Supplementary Figure S3: Begg's funnel plot**

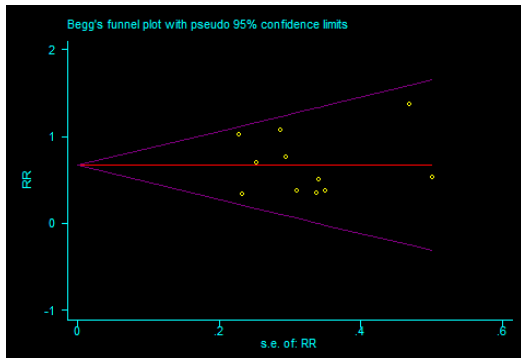1.1.Begg's funnel plot for colitis (Grade1-5) in patients treated with PD-1 antibodies versus chemotherapy therapy



1.2. Begg's funnel plot for colitis (Grade3-5) in patients treated with PD-1 inhibitor versus chemotherapy therapy



1.3. Begg's funnel plot for diarrhea (Grade1-5) in patients treated with PD-1 inhibitor versus chemotherapy therapy



1.4. Begg's funnel plot for diarrhea (Grade3-5) in patients treated with PD-1 inhibitor versus chemotherapy therapy