Supplementary file 1: Bias characteristics in included studies.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Authors, years | Selection bias | Performance bias | Detection bias | Attrition bias | Reporting bias | Other bias |
| Random sequencegeneration | Allocationconcealment | Blinding ofparticipants | Blinding of personnel  | Blinding of outcomeassessment | Incompleteoutcomedata | Selectivereporting | Other sourcesof bias |
| Akkucuk, 2013 (37) | unclear risk | unclear risk | high risk | high risk | high risk | high risk | low risk | low risk |
| Boldt, 1993 (29) | unclear risk | unclear risk | unclear risk | high risk | low risk | high risk | high risk | high risk |
| Chong Sung, 2006 (33) | unclear risk | unclear risk | high risk | high risk | high risk | low risk | low risk | unclear risk |
| Van Der Linden, 2013 (36) | low risk | low risk | low risk | low risk | low risk | low risk | low risk | low risk |
| Miao, 2015 (31) | low risk | low risk | high risk | high risk | high risk | high risk | low risk | low risk |
| Paul, 2003 (30) | unclear risk | unclear risk | high risk | high risk | high risk | high risk | low risk | low risk |
| Standl, 2008 (34) | low risk | low risk | high risk | high risk | high risk | high risk | low risk | low risk |
| Hanart, 2009 (35) | low risk | low risk | high risk | low risk | low risk | low risk | low risk | low risk |
| Witt, 2008 (42) | low risk | low risk | high risk | high risk | high risk | high risk | low risk | low risk |

**Supplementary file 2**: Grade analysis of outcomes. 1:Intravenous fluid intakes on day 1; 2: urine output on day 1; 3: blood loss on day 1.

| **Outcome** | **Quality assessment** | **Number of patients** | **Effect** | **Quality** |
| --- | --- | --- | --- | --- |
|  | **№ of studies** | **Study** **design** | **Risk of bias** | **Inconsistency** | **Indirectness** | **Imprecision** | **Other considerations** | **HES** | **Control** | **Relative(95% CI)** | **Absolute(95% CI)** |  |
| 1 | 6 | Randomisedtrials  | seriousa | seriousb | not serious  | seriousc | none  | 162  | 157 | - | MD 0.04 higher(1.76 lower to 1.84 higher) | ⨁◯◯◯VERY LOW  |
| 2 | 4 | Randomisedtrials  | seriousa | seriousb | not serious  | seriousc | none  | 98  | 98 | - | MD 7.17 lower(17.29 lower to 2.95 higher) | ⨁◯◯◯VERY LOW  |
| 3 | 4 | Randomisedtrials  | seriousa | seriousb | not serious  | seriousc | none  | 125  | 121 | - | MD 0 (0.23 lower to 0.24 higher) | ⨁◯◯◯VERY LOW  |

HES: Hydro Ethyl Starch; CI: Confidence interval; MD: Mean difference

a. Most study were at high-risk bias; b. Heterogenous studies; c. Underpowered analysis