Supplementary file 1: Bias characteristics in included studies.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Authors, years | Selection bias | | Performance bias | | Detection bias | Attrition bias | Reporting bias | Other bias |
| Random sequence  generation | Allocation  concealment | Blinding of  participants | Blinding of  personnel | Blinding of  outcome  assessment | Incomplete  outcome  data | Selective  reporting | Other sources  of 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 | Randomised  trials | seriousa | seriousb | not serious | seriousc | none | 162 | | 157 | - | MD 0.04 higher (1.76 lower to 1.84 higher) | ⨁◯◯◯ VERY LOW |
| 2 | 4 | Randomised  trials | seriousa | seriousb | not serious | seriousc | none | 98 | | 98 | - | MD 7.17 lower (17.29 lower to 2.95 higher) | ⨁◯◯◯ VERY LOW |
| 3 | 4 | Randomised  trials | 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