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| **Study** | ***Hassan 2012*** | ***Tekumit***  ***2010*** | ***Cacciatore***  ***2012*** | ***Ghotkar***  ***2005*** | ***Soppa***  ***2013*** | ***Mazzeffi***  ***2014*** | ***Hein***  ***2006*** | ***Mazzoni***  ***2006*** | ***Wahl 1996*** | ***Heimrath***  ***2007*** | ***Efird***  ***2016*** |
| **Overall Rating** | Good | Fair | Good | Good | Fair | Fair | Fair | Good | Poor | Good | Good |
| **Research Question** |  |  |  |  |  |  |  |  |  |  |  |
| **Study Population** |  |  |  |  |  |  |  |  |  |  |  |
| **Participation Rate > 50%** |  |  |  |  |  |  |  |  |  |  |  |
| **Selection Criteria** |  |  |  |  |  |  |  |  |  |  |  |
| **Sample Size, Variance, Effect Sizes** |  |  |  |  |  |  |  |  |  |  |  |
| **Exposures measured prior to outcome** |  |  |  |  |  |  |  |  |  |  |  |
| **Time adequate for association** |  |  |  |  |  |  |  |  |  |  |  |
| **Levels of exposure** |  |  |  |  |  |  |  |  |  |  |  |
| **Exposure Definitions** |  |  |  |  |  |  |  |  |  |  |  |
| **Multiple assessment of exposure** |  |  |  |  |  |  |  |  |  |  |  |
| **Outcome definitions** |  |  |  |  |  |  |  |  |  |  |  |
| **Outcome assessors blinding** |  |  |  |  |  |  |  |  |  |  |  |
| **Loss to follow up < 20%** |  |  |  |  |  |  |  |  |  |  |  |
| **Adjustment of Confounders** |  |  |  |  |  |  |  |  |  |  |  |

Supplemental Table 1 NIH quality assessment toll for risk of bias of included studies. Green symbols indicate low risk of bias, red symbols high risk of bias, yellow symbols unclear risk of bias

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| **Study** | ***Bashour***  ***2000*** | ***Engoren 2000*** | ***Williams***  ***2002*** | ***Gaudino***  ***2007*** | ***Rosenfeld***  ***2006*** | ***Grothusen***  ***2012*** | ***LaPar***  ***2013*** | ***Ryan***  ***1997*** | ***Hein***  ***2006*** | ***Joskowiak***  ***2013*** |
| **Overall Rating** | Good | Fair | Fair | Poor | Good | Fair | Good | Fair | Fair | Good |
| **Research Question** |  |  |  |  |  |  |  |  |  |  |
| **Study Population** |  |  |  |  |  |  |  |  |  |  |
| **Participation Rate > 50%** |  |  |  |  |  |  |  |  |  |  |
| **Selection Criteria** |  |  |  |  |  |  |  |  |  |  |
| **Sample Size, Variance, Effect Sizes** |  |  |  |  |  |  |  |  |  |  |
| **Exposures measured prior to outcome** |  |  |  |  |  |  |  |  |  |  |
| **Time adequate for association** |  |  |  |  |  |  |  |  |  |  |
| **Levels of exposure** |  |  |  |  |  |  |  |  |  |  |
| **Exposure Definitions** |  |  |  |  |  |  |  |  |  |  |
| **Multiple assessment of exposure** |  |  |  |  |  |  |  |  |  |  |
| **Outcome definitions** |  |  |  |  |  |  |  |  |  |  |
| **Outcome assessors blinding** |  |  |  |  |  |  |  |  |  |  |
| **Loss to follow up < 20%** |  |  |  |  |  |  |  |  |  |  |
| **Adjustment of Confounders** |  |  |  |  |  |  |  |  |  |  |

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| **Study** | ***Mahesh***  ***2012*** | ***Hellgren***  ***2005*** | ***Niskanen 1999*** | ***Giakoumidakis***  ***2012*** | ***Isgro***  ***2002*** | ***Bapat 2005*** | ***Lagercrantz***  ***2010*** | ***Deschka***  ***2013*** | ***Silberman***  ***2013*** |
| **Overall Rating** | Good | Fair | Poor | Good | Good | Poor | Poor | Poor | Good |
| **Research Question** |  |  |  |  |  |  |  |  |  |
| **Study Population** |  |  |  |  |  |  |  |  |  |
| **Participation Rate > 50%** |  |  |  |  |  |  |  |  |  |
| **Selection Criteria** |  |  |  |  |  |  |  |  |  |
| **Sample Size, Variance, Effect Sizes** |  |  |  |  |  |  |  |  |  |
| **Exposures measured prior to outcome** |  |  |  |  |  |  |  |  |  |
| **Time adequate for association** |  |  |  |  |  |  |  |  |  |
| **Levels of exposure** |  |  |  |  |  |  |  |  |  |
| **Exposure Definitions** |  |  |  |  |  |  |  |  |  |
| **Multiple assessment of exposure** |  |  |  |  |  |  |  |  |  |
| **Outcome definitions** |  |  |  |  |  |  |  |  |  |
| **Outcome assessors blinding** |  |  |  |  |  |  |  |  |  |
| **Loss to follow up < 20%** |  |  |  |  |  |  |  |  |  |
| **Adjustment of Confounders** |  |  |  |  |  |  |  |  |  |

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| **Study** | ***Elfstrom 2011*** | ***Manji 2016*** | ***Arora 2017*** | ***Yu 2016*** |
| **Overall Rating** | Good | Good | Good | Good |
| **Research Question** |  |  |  |  |
| **Study Population** |  |  |  |  |
| **Participation Rate > 50%** |  |  |  |  |
| **Selection Criteria** |  |  |  |  |
| **Sample Size, Variance, Effect Sizes** |  |  |  |  |
| **Exposures measured prior to outcome** |  |  |  |  |
| **Time adequate for association** |  |  |  |  |
| **Levels of exposure** |  |  |  |  |
| **Exposure Definitions** |  |  |  |  |
| **Multiple assessment of exposure** |  |  |  |  |
| **Outcome definitions** |  |  |  |  |
| **Outcome assessors blinding** |  |  |  |  |
| **Loss to follow up < 20%** |  |  |  |  |
| **Adjustment of Confounders** |  |  |  |  |