Triclosan, HTA-report 2014:11

Included and excluded articles

RCT= randomized controlled trial, SSI= surgical site infection, ITT=intention to treat analysis, mITT= modified ITT, PP= per protocol analysis, I= intervention, C= control, CABG=coronary artery bypass grafting, Polyglactin 910= Vicryl, Poliglecaprone=Monocryl, Polydioxanone= PDSl

Author, year, country	Study design Population Blinding	Follow up period, Patients lost ITT/PP-analyses	Results	Comments	Quality
Timour-Bergström et al 2013 Sweden	Double-blinded single-center RCT Vein harvesting in leg for CABG Power calculation suggests 180+180 pts. 392 pts randomized to triclosan coated or uncoated polyglactin and poliglecaprone for subcutaneous and skin sutures, respectively Stratified for diabetes	Primary end point: leg SSI within 60d Follow up at day 4, 30 and by phone day 60 9+9 patients excluded for protocol violations or lost to follow-up PP 190+184 pts	I: 23/184 (12.5%) C: 38/190 (20 %) p=0.0497 (Chi square) RR=0.63 (95% CI 0.39-1.00) Log-rank test p=0.056	Supported by Ethicon	High
Nakamura et al 2013 Japan	Blinded single-center RCT Elective colorectal surgery, open and laparoscopic Assessors of outcome, but not surgeons, blinded Power calculation suggests 400 pts 410 pts randomized to triclosan coated or uncoated polyglactin for wound closure. Staples for skin	Primary end point: SSI within 30 d Follow up weekly for 30 days No pts lost to follow-up	All pats: I: 9/206 (4.3%) C: 19/204 (9.3%) P=0.047 Laparotomy: I: 4/87 (4.6%) C: 12/96 (12.3%) p=0.061 Laparoscopy: I: 5/119 (4.2%) C: 7/108 (6.5%) p=0.43	Statistical method for primary outcome analysis not stated Two different surgical techniques with different risk for SSI Subgroup analysis of open vs laparoscopic surgery post hoc Conflicts of interest not reported No premature termination of study participation reported.	High

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Author, year, country	Study design Population Blinding	Follow up period, Patients lost ITT/PP-analyses	Results	Comments	Quality
Turtiainen et al 2012 Finland	Double-blinded multi-center RCT Elective lower limb vascular surgery Power calculation suggests 137+137 pts. 276 pts randomized to triclosan coated or uncoated polyglactin and poliglecaprone for subcutaneous and skin sutures, respectively	Primary end point: SSI within 30 d Follow-up 30 days Ten pts died before day 30, no others lost to follow-up. Results based on the entire randomized sample, 139+137 pts	I:31/139 (22.3%) (24 superficial, 5 deep and 2 graft infections) C: 30/137 (22%) (22 superficial, 5 deep and 3 graft infections) p= 0.75 (log regress) OR 1.10 (95% CI 0.61-2.01)	Patients who died uninfected before day 30 were recorded as uninfected (n=9) Conflicts of interest not reported	High
Diener et al 2014 Germany	Double-blinded multi-center RCT Elective laparotomy, midline incision (56% colorectal surgery) Power calculation suggests 750 pts but due to uncertainty of treatment effect an adaptive design with sample size recalculation after preplanned interim analysis was used 1224 pts randomized to triclosan coated or uncoated polydioxanone for closure of fascia. Regular suture material for subcutaneous tissue in both groups.	Primary end point: superficial or deep SSI within 30 d, mITT population Follow up at day 10 (or at discharge) and day 30 20+19 pts (I+C) excluded for not receiving study treatment leaving 1185 pts for modified ITT analysis 136+136 pts (I+C) were excluded for PP analysis mainly due to major protocol violations leaving 913 pts to PP analysis	mITT I: 87/587 (14.8%) C: 96/598 (16.1%) p =0.64 OR 0.91 (95% CI 0.66-1.25) PP outcome results not shown, reported to be NS.	Study stopped for futility after 2nd predefined interim analysis The PP and mITT analyses include 108 + 118 pts with premature study termination mainly due to reoperations, death, withdrawn consent and lost to follow-up. Missing values for outcome was replaced with a random outcome based on the probability of a SSI for the complete outcome group Of the randomized pts, 44% (537 (I:264 + C:273)) were excluded or terminated the study before day 30. Sponsored by Johnson &Johnson	Medium
Seim et al 2012 Norway	Single center RCT. Surgeons unblinded, blinding not stated for assessors. Vein harvesting of legs in CABG	Primary end point: SSI within 4 weeks Follow up of discharged pts at 4 weeks by questionnaire and suspected infections were	I: 16/160 (10.0%) C: 17/163 (10.4%) NS	Diagnostic criteria not described in detail No conflicts of interest	Medium

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Author, year, country	Study design Population Blinding	Follow up period, Patients lost ITT/PP-analyses	Results	Comments	Quality
	Power calculation suggests 302 pts. 328 pts randomized to triclosan coated or uncoated polyglactin for skin closure of leg wound	diagnosed by GP (clinical judgement and positive bacterial culture) 4+1 pts (I+C) lost to follow up			
Isik et al 2012 Turkey	Double-blinded single-center RCT Open cardiac surgery and vein harvesting from leg Power calculation suggests 170+340 pts. 510 pts randomized 1:2 to triclosan coated or uncoated polyglactin for skin closure.	Primary end point unclear: sternal wound infection, leg wound infection or any SSI within 30 d Follow-up daily day 10, 20 and 30 after surgery Results based on the entire randomized sample for sternal wounds, 170+340. No drop outs and no pts lost to follow up for sternal wounds - ITT. Dropouts and pts lost to follow-up not stated for leg wounds.	Sternal wound I: 4/170 (2.4%) C: 12/340 (3.5%) p= 0.596 Leg wound I: 5/142 (3.5%) C: 10/260 (3.8%) p=1.0	Primary endpoint unclear. Power calculation based on any SSI but results for any SSI (leg or sternum) not presented. Randomization procedure and blinding not described in detail. Reason for unequal sample sizes not given. Number of randomized patients with leg wounds not stated. No conflicts of interest.	Medium
Williams et al 2011 United kingdom	Double-blinded single-center RCT Breast cancer surgery (excluded: preop chemo- or radiation therapy or skin ulceration) Power calculation based on ASEPSIS score suggests 75+75 pts. 150 pts blockrandomized to triclosan coated or uncoated polyglactin and poliglecaprone for subcutaneous and skin sutures, respectively	Primary end point: SSI within 6 weeks Follow up at 2 (n=146) and 6 (n=127) weeks 2+2 pts lost at 2 weeks 7+12 more pts lost at 6 weeks	At 2 weeks I: 9/73 (12.3%) C: 11/73 (15.1%) NS At 6 weeks I: 10/66 (15.2%) C: 14/61 (22.9%) NS	Power calculation based on ASEPSIS, not SSI Reasons for further surgery for 5+10 pts not reported Unclear how infected patients at 2 weeks who dropped out before 6 weeks were recorded at 6 weeks. 23 patients (15,3%) unevaluable at 6 weeks One author has been consultant for Ethicon	Medium

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Author, year, country	Study design Population Blinding	Follow up period, Patients lost ITT/PP-analyses	Results	Comments	Quality
Galal et al 2011 Egypt	Double-blinded single-center RCT (part of a multi-center trial) All kinds of surgery, mainly vascular, plastic, gastro-intestinal, biopsy and hernia surgery n=450 pts randomized to triclosan coated or uncoated polyglactin suture for all surgical steps. Multiple variations in use of other uncoated suture materials occurred in both groups.	Primary end point: SSI within 30 d (prosthetic implants 1 y) Follow-up daily during hospitalization and then weekly for 30 d, then monthly for prosthetic group.	I: 17/230 (7%) C: 33/ 220 (15%) P =0.011 Class I I:4/117 (3.4%) C:8/119 (6.7 %) Class II-IV I: 13/106 (12.3 %) C: 25/108 (23.1 %)	Closing techniques not standardized Results from one center in a multi-center study. Data from the other centers and the progress of the trial unknown. No power calculation Consecutive pts? No drop outs Conflicts of interests not reported	Medium
Mingmalairak et al 2009 Thailand	Double-blinded single-center RCT Appendectomy excluding pts with diabetes and immuno-suppression Power calculation suggested 672+672 pts 100 pts randomized to triclosan coated or uncoated polyglactin suture for closure of abdominal sheath. Skin closure not mentioned. Published as a preliminary report	Primary end point: SSI. The follow-up time for evaluation of SSI 1 year Follow up at 1, 3, 7, 14, 30 days, 6 months & 1 year No dropouts	I: 5/50 (10%) C: 4/50 (8%) P=0.727	SSI criteria not specified in paper but confirmed as CDC when contacted by Daoud et al. (Surg Inf 2014;15: Apr 14) Preliminary safety report Not reported when events occurred No conflicts of interests	Medium
Justinger et al 2013 Germany	Double-blinded single-center RCT Open laparotomy (approx. half liver and panchreas surgery) Power calculation suggests 350+350 pts 1042 pts cluster randomized to triclosan coated or uncoated polydioxanone for	Primary end point: superficial SSI within 2 w Wound assessed daily during hospitalization and 14 days postop 186 excluded (75 for no open laparotomy done, 101 revisions, burst abdomen and abdomen not closed, 10 death). PP analysis	I: 31/485 (6.4%) C: 42/371 (11.3%) P<0.05	Cluster randomization, i.e. 50-100 consecutive pts were sutured with one type and then 50-100 pts were sutured with the other type of suture. No individual randomization. Incomplete flow chart Group allocation for the 186 excluded pts not given. Uneven number of the pp cohorts suggests that most excluded pts were controls. The exact p-value is p=0.0132	Low

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Author, year, country	Study design Population Blinding	Follow up period, Patients lost ITT/PP-analyses	Results	Comments	Quality
	closure of fascia. No subcutaneous sutures. Staples for skin			Sponsored by Johnson &Johnson	
Baracs et al 2011 Hungary	Multi-center RCT Elective open colorectal surgery Blinding not specified Power calculation suggested 468 pts 468 pts randomized to triclosan coated or uncoated polydioxanone for closure of fascia. Poliglecaprone 25 with triclosan was used for skin suture in all patients. Subcutaneous sutures optional.	Primary end point: SSI within 30 days after discharge Follow up during hospitalization and by telephone 30 d after discharge. 83 pts (18.1%) lost or excluded (45 inoperable tumour,19 postoperative sepsis, 8 protocol violations, 2 withdrawn consent, 9 unsuccessful bowel preparation) 385 pts left for analysis	I: 23/188 (12.2%) C: 24/197 (12.2%) NS	Open label study No flow chart. Unclear timing of randomization Group allocation for the 83 excluded pts not given. Intraoperative findings reasons for exclusion High risk pts excluded Skin closure with triclosan coated poliglecapronein all patients Not a uniform follow-up time No conflict of interest	Low

Excluded articles

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Author Year Country	Comments
Ford et al. 2005 USA	Not according to PICO Primary outcome intraoperative handling of sutures SSI one of secondary endpoints
Rozelle et al. 2008 USA	Not according to PICO Primary outcome shunt infections Wound infections not reported RCT
Deliaert et al. 2009 The Netherlands	Not according to PICO, Primary outcome dehiscence Wound infections not reported RCT
Justinger et al. 2009 Germany	Not according to PICO Polydioxan vs triclosan coated polyglactin Observational study,historical controls
Justinger et al. 2011 Germany	Not according to PICO Extension of Justinger 2009
Chen et al. 2011 China	Not according to PICO Inadequate randomization Blinding unclear
Rasic et al. 2011 Croatia	Not according to PICO Primary outcome abdominal wall healing
Zhang et al. 2011 China	Not according to PICO Triclosan coated polyglac vs silk
Stadler et al. 2011 Austria	Not according to PICO Triclosan coated polyglactin vesus various sutures Retrospective comparative study
Laas et al. 2012 France	Not according to PICO Not blinded Observational study, historical controls
Hoshino et al. 2013	Not according to PICO Unclear reporting Observational study,historical controls
Ueno et al. 2013 Japan	Not according to PICO Not blinded Observational study,historical controls