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Comparison of Superficial Surgical Site Infection Between Delayed Primary Versus Primary Wound Closure in Complicated Appendicitis: A Randomized Controlled Trial.

Siribumrungwong B[1,2], Chantip A[3], Noorit P[4], Wilasrusmee C[5], Ungpinitpong W[6], Chotiya P[7], Leerapan B[8], Woratanarat P[9], McEvoy M[10], Attia J[10], Thakkinstian A[1].
[1]Section for Clinical Epidemiology and Biostatistics, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand; [2]Department of Surgery, Faculty of Medicine, Thammasat University Hospital, Thammasat University, Pathumthani, Thailand;[3]Department of Surgery, Lampang Regional Hospital, Lampang, Thailand;[4]Department of Surgery, Chonburi Hospital, Chonburi, Thailand;[5]Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand;[6]Department of Surgery, Surin Hospital, Surin, Thailand;[7]Department of Surgery, Pathum Thani Hospital, Pathum Thani, Thailand.[8]Department of Community Medicine, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand;[9]Department of Orthopedics, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand;[10]Centre for Clinical Epidemiology and Biostatistics, Hunter Medical Research Institute, School of Medicine and Public Health, University of Newcastle, Newcastle, NSW, Australia.

OBJECTIVE: To compare superficial surgical site infection (SSI) rates between delayed primary wound closure (DPC) and primary wound closure (PC) for complicated appendicitis.
BACKGROUND:SSI is common in appendectomy for complicated appendicitis. DPC is preferentially used over PC, but its efficacy is still controversial.
METHODS:A multicenter randomized controlled trial was conducted in 6 hospitals in Thailand, enrolling patients with gangrenous and ruptured appendicitis. Patients were randomized to PC (ie, immediately wound closure) or DPC (ie, wound closure at postoperative days 3-5). Superficial SSI was defined by the Center for Disease Control criteria. Secondary outcomes included postoperative pain, length of stay, recovery time, quality of life, and cost of treatment.
RESULTS: In all, 303 and 304 patients were randomized to PC and DPC groups, and 5 and 4 patients were lost to follow-up, respectively, leaving 300 and 298 patients in the modified intention-to-treat analysis. The superficial SSI rate was lower in the PC than DPC groups [ie, 7.3% (95% confidence interval 4.4, 10.3) vs 10% (95% CI 6.6, 13.3)] with a risk difference (RD) of -2.7% (-7.1%, 1.9%), but this RD was not significant. Postoperative pain, length of stay, recovery times, and quality of life were nonsignificantly different with corresponding RDs of 0.3 (-2.5, 3.0), -0.1 (-0.5, 0.3), -0.2 (-0.8, 0.4), and 0.02 (-0.01, 0.04), respectively. However, costs for PC were 2083 (1410, 2756) Baht cheaper than DPC (~$60 USD).
CONCLUSIONS: Superficial SSI rates for the PC group were slightly lower than DPC group, but this did not reach statistical significance. Costs were significantly lower for the PC group.

Efficacy and safety of antiscabietic agents: A systematic review and network meta-analysis of randomised controlled trials

Kunlawat Thadanipon[1], Thunyarat Anothaisintawee[1], Sasivimol Ratanasiri[1], Ammarin Thakkinstian[1], John Attia[2]

[1]Section for Clinical Epidemiology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand; [2]Centre for Clinical Epidemiology and Biostatistics, School of Medicine and Public Health, Faculty of Health and Medicine, University of New Castle, NSW, Australia.

Background Scabies is still a common disease worldwide. Many drugs have been used to treat it, but it is unclear which treatment one among them is the best. Therefore, we compared explored the efficacy comparative and safety effects of various antiscabietic agents on three outcomes in this systematic review.

Methods We searched MEDLINE, Scopus, Cochrane Central Register of Controlled Trials, additional with others databases Online Computer Library Center, WHO International Clinical Trials Registry Platform, and Thai-Journal Citation Index Centre from since inception to 14 September 2017. We included only randomised controlled trials, which compared medications used for treating scabies treatments in adults/ or children for by any of these following outcomes: cure, persistent itching, and adverse events. We excluded trials comparing exclusively dosages or formulations of the same drug and cluster randomised controlled trials. Two reviewers of us independently extracted data and assessed risk of bias. We used frequentist network meta-analysis to estimate relative treatment compare comparisonstreatment effects of the medications. This study is registered with PROSPERO (CRD42016044022).

Results Our search identified 2569 records, of which 45Forty-five trials involving 7825 patients were eligible. They These included 10 treatments: sulfur, benzyl benzoate, lindane, malathion, crotamiton, permethrin, oral ivermectin, topical ivermectin, synergised pyrethrins, and herbal medicine. Compared with permethrin (the reference treatment), sulfur, malathion, lindane, crotamiton, and benzyl benzoate had significantly lower cure rates, with pooled risk ratios (95% CI) of 0·72 (0·60, 0·85), 0·71 (0·51, 0·98), 0·78 (0·70, 0·86), 0·77 (0·67, 0·88), and 0·85 (0·76, 0·96), respectively. Permethrin, topical ivermectin, and synergised pyrethrins were the best treatments in providing highest cure, lowest persistent itching, and lowest cutaneous adverse events, respectively. Synergised pyrethrins retained the best balance between cure and cutaneous adverse events.

Conclusions Permethrin, topical ivermectin, and synergised pyrethrins might be drugs of choices for scabies. There is no one treatment that ranked best in all aspects. Physicians should consider both the efficacy and safety profiles, as well as the cost and ease of administration associated with each treatment.

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Network meta-analysis of antibiotic prophylaxis for prevention of surgical-site infection after groin hernia surgery.

Boonchan T[1,2], Wilasrusmee C[3], McEvoy M[4], Attia J[4], Thakkinstian A[1].
[1]Section for Clinical Epidemiology and Biostatistics and, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand;[2]Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand;[3]Department of Surgery, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand;[4]School of Medicine and Public Health, University of Newcastle, Newcastle, New South Wales, Australia.

BACKGROUND: First-generation cephalosporins (such as cefazolin) are recommended as antibiotic prophylaxis in groin hernia repair, but other broad-spectrum antibiotics have also been prescribed in clinical practice. This was a systematic review and network meta-analysis to compare the efficacy of different antibiotic classes for prevention of surgical-site infection (SSI) after hernia repair.
METHODS: RCTs were identified that compared efficacy of antibiotic prophylaxis on SSI after inguinal or femoral hernia repair from PubMed and Scopus databases up to March 2016. Data were extracted independently by two reviewers. Network meta-analysis was applied to assess treatment efficacy. The probability of being the best antibiotic prophylaxis was estimated using surface under the cumulative ranking curve (SUCRA) analysis.
RESULTS: Fifteen RCTs (5159 patients) met the inclusion criteria. Interventions were first-generation (7 RCTs, 1237 patients) and second-generation (2 RCTs, 532) cephalosporins, β-lactam/β-lactamase inhibitors (6 RCTs, 619) and fluoroquinolones (2 RCTs, 581), with placebo as the most common comparator (14 RCTs, 2190). A network meta-analysis showed that β-lactam/β-lactamase inhibitors and first-generation cephalosporins were significantly superior to placebo, with a pooled risk ratio of 0·44 (95 per cent c.i. 0·25 to 0·75) and 0·62 (0·42 to 0·92) respectively. However, none of the antibiotic classes was significantly different from the others. SUCRA results indicated that β-lactam/β-lactamase inhibitors and first-generation cephalosporins were ranked first and second respectively for best prophylaxis.
CONCLUSION: β-Lactam/β-lactamase inhibitors followed by first-generation cephalosporins ranked as the most effective SSI prophylaxis for adult patients undergoing groin hernia repair.

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The Relationship Among Morningness-Eveningness, Sleep Duration, Social Jetlag, and Body Mass Index in Asian Patients With Prediabetes.

Anothaisintawee T[1,2], Lertrattananon D[1], Thamakaison S[1], Thakkinstian A[2], Reutrakul S[3,4].

1Department of Family Medicine; [2]Section for Clinical Epidemiology and Biostatistics;[3]Division of Endocrinology and Metabolism, Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand; [4]Division of Endocrinology, Diabetes and Metabolism, Department of Medicine, University of Illinois at Chicago, Chicago, IL, United States.

Background: Circadian system is known to influence energy metabolism. Recent evidence suggested that evening preference could be associated with higher body mass index (BMI). Moreover, evening preference is known to be associated with insufficient sleep duration and greater social jetlag, both described to be associated with obesity. This study aimed to explore whether morningness-eveningness was directly associated with BMI or its effect was transmitted through sleep duration or social jetlag in patients with prediabetes.

Methods: A total 2,133 patients with prediabetes were enrolled. Morningness-eveningness was assessed using a Composite Scale of Morningness (CSM). Average weekly sleep duration and sleep timing were obtained, and social jetlag was calculated. BMI was calculated by weight (kg)/height^2(m^2). A mediation analysis was performed based on two pathways, i.e. CSM→sleep→duration→BMI and CSM→social jetlag→BMI. A sequential equation model was used to estimate the direct and indirect effects of CSM on BMI.

Results: Mean (SD) age and BMI were 63.6 (9.2) years and 25.8 (4.0) kg/m^2. For CSM→sleep duration→BMI pathway, every one point decrease in CSM (more evening preference) was associated with a decrease in sleep duration by 0.054 h (95% CI 0.043-0.066), whereas sleep duration was negatively associated with BMI (coefficient = -0.156, 95%CI -0.288, -0.024). Mediation analysis indicated that a change in CSM (from 90th to 10th percentile, more evening preference) was associated with a decrease in sleep duration and an increase in BMI by 0.102 kg/m^2 (95% CI 0.015, 0.207). In addition, this change in CSM was directly associated with an increase in BMI by 0.511 kg/m^2 (95%CI 0.030, 0.952). The CSM→social jetlag→BMI pathway analysis revealed that social jetlag was not significantly associated with BMI. A subgroup analysis in those aged ≤60 years (*n* = 784) revealed that each hour increase in social jetlag was

associated with an increase in BMI by 0.56 kg/m^2 (p = 0.026) while CSM and sleep duration were not. **Conclusion:** In patients with prediabetes, more evening preference was directly associated with higher BMI and indirectly through insufficient sleep duration, while social jetlag did not mediate the relationship between CSM and BMI. In those ≤60 years, only greater social jetlag was associated with higher BMI. These data could inform further interventional studies to reduce BMI in this high risk group.

Mediation Effect of Neutrophil Lymphocyte Ratio on Cardiometabolic Risk Factors and Cardiovascular Events

Teeranan Angkananard[1,2];Thunyarat Anothaisintawee [1,3];Atiporn Ingsathit[1];Mark McEvoy[4];Anusorn Limpianunchai[5];John Attia [4,6];Piyamitr Sritara[7];John Attia[4];Ammarin Thakkinstian [1]

[1] Section for Clinical Epidemiology and Biostatistics, [3] Department of Family Medicine,Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand;[2] Division of Cardiovascular Medicine, Department of Medicine, Faculty of Medicine, HRH Princess Maha Chakri Sirindhorn Medical Center, Srinakharinwirot University, Nakhon Nayok, Thailand;[4] Center for Clinical Epidemiology and Biostatistics, The School of Medicine and Public Health, the University of Newcastle, Newcastle, NSW, Australia; [5]Medical and Health Division, Electricity Generating Authority of Thailand, Nonthaburi, Thailand; [6]Hunter Medical Research Institute, Newcastle, NSW, Australia; [7]Division of Cardiology, Department of Medicine, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Background Previous studies have shown that the neutrophil to lymphocyte ratio (NLR) is an inflammatory biomarker of cardiovascular events (CVEs), but have not investigated the causal pathways involved. We aimed to explore both the direct effect of NLR on CVEs incidence, and the indirect effects that might be mediated through diabetes mellitus (DM), hypertension (HT) and creatinine (Cr).

Methods The study was conducted using data from the Electricity Generating Authority of Thailand cohort, from 2002-2012. Two casual pathways were constructed, i.e., A: NLR→ (DM → Cr→ HT) →CVEs and B: NLR→ (DM → HT→Cr) → CVEs, in which NLR was the independent variable, DM, Cr and HT were mediators, and CVE was the outcome of interest. A generalized structural equation model (GSEM) was applied using a logit link function for binary mediators/outcome, and an identity link function for Cr. Coefficients were then used to estimate direct and indirect effects of NLR on CVEs. Bootstrapping with 1,000-replications was applied to average mediation effects.

Results

Out of 2,501 subjects, 219 CVEs occurred, an incidence rate of 8.8/1000/year. Prevalence rates of HT, DM, and CKD were 45.1%, 23.6%, and 16.5%, respectively. Mean of serum Cr was 1.02 $\pm$ 0.43 mg/dL. Mean of NLR of those having CVEs was higher than those without CVEs (2.13$\pm$0.12 vs. 1.79$\pm$0.01, p-value =0.04). For pathway A, NLR was directly associated with CVEs with an OR of 1.25 (95% CI: 1.12, 1.38). Indirect effects of NLR on CVEs were also mediated through DM (OR=1.06, 95% CI 1.01, 1.11), Cr (OR=1.01, 95% CI 1.00, 1.02), and poorly-controlled HT (OR=1.07, 95% CI:1.01, 1.14). The indirect effects of NLR via DM →Cr→CVEs, and via DM→poorly-controlled HT→CVEs were also significant with ORs of 1.003 (95% CI:1.0003, 1.006) and 1.04 (95%CI:1.00, 1.07). For pathway B, NLR was significantly associated with CVEs through three mediators, i.e., NLR→DM→well-controlled HT→Cr→CVEs and NLR→DM →poorly-controlled HT→Cr→CVEs with the ORs 1.001 (95%CI:1.000, 1.003) and 1.002 (95%CI:1.001, 1.003), respectively.

Conclusion Our findings demonstrate direct causal relationships between NLR and CVEs as well as indirectly through DM, HT and Cr.

Prehospital prediction of severe injury in road traffic injuries

Pongsakorn Atiksawedparit[1], Sasivimol Rattanasiri[1], Yuwares Sittichanbuncha[2], Mark McEvoy[3], Paibul Suriyawongpaisal[4], John Attia[3], Ammarin Thakkinstian[1]

[1]Section for Clinical Epidemiology and Biostatistics, [2]Department of Emergency Medicine, [4]Department of community medicine Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand; [3]Centre for Clinical Epidemiology & Biostatistics, Hunter Medical Research Institute, School of Medicine and Public Health, University of Newcastle, NSW Australia

Objective: To develop and validate a risk stratification model of severe injury (SI) and death to identify and prioritize road traffic injury (RTI) patients for transportation to an appropriate trauma center (TC).

Methods: A 2-phase multicenter-cross-sectional study was collaboratively conducted using 9 dispatch centers (DC) across Thailand. Seven and 2 DCs were used for development and validation. RTI patients who were treated and transported to hospitals by advanced life support (ALS) response units were enrolled. Multiple logistic regression was used to derived risk prediction score of death in 48 hours and SI (new injury severity score ≥ 16). Calibration/discrimination performances were explored.

Results: A total of 5,359 and 2,097 RTIs were used for development and external validation. Demographic data, mechanism of injury, physiologic data, EMS operation, and prehospital managements were significant predictors of death/SI. Risk prediction models fitted well with the developed data (O/E ratios of 1.00 (IQR: 0.50, 1.15) and 0.98 (IQR: 0.91, 1.05) for death and SI, respectively); and the C statistics of 0.966 (0.960,

0.971) and 0.913 (0.905, 0.922). Model was externally good/excellent discriminated with C statistics from 0.896 (0.871, 0.922) to 0.980 (0.970, 0.990). The risk scores were further stratified as low, moderate and high risk. Threshold probabilities of 0.05 and 0.1 gained net benefit over treating all subjects.

Conclusion: Risk prediction models of death and SI were developed with good calibration and excellent discrimination. The model should be useful for ALS response units in properly allocation of patients.