Molecule ID: 58
Keyword: penicillin
User Name: Mohssen1
Date of Creation: 2024-04-22 09:20:06

PubChem

Compound Name: Cloxacillin
Molecular Form: C19H18ClN3O5S
Molecular weight:435.9 g/mol
CAS registration: 61-72-3
ATC code: J - Antiinfectives for systemic use / J01 - Antibacterials for systemic use / J01C - Beta-lactam antibacterials, penicillins / J01CF - Beta-lactamase resistant penicillins / J01CF02 - Cloxacillin
IUPAC name:
(2S,5R,6R)-6-[[3-(2-chlorophenyl)-5-methyl-1,2-oxazole-4-carbonyl]amino]-3,3-dimethyl-7-oxo-4-thia-1
Solubility: 5.32e-02 g/L
Physical description: Solid
Melting point: Melting Point not found
Decomposition: Decomposition not found
Half life: Biological Half-life not found
Reactivity: Reactivity not found

PubMed

Pharmacodynamics:

Overview of Efficacy: URL: http://www.ncbi.nlm.nih.gov/pmc/articles/pmc9225766/ Paragraphs: We provide an overview of the three generations of tetracycline-class drugs, focussing on the efficacy, safety, and clinical utility of these three new third-generation tetracycline-class drugs. We also consider various scenarios of unmet clinical needs where patients might benefit from re-engagement with tetracycline-class antibiotics including outpatient treatment options, patients with known β-lactam antibiotic allergy, reducing the risk of Clostridioides difficile infection, and their potential as monotherapy in polymicrobial infections while minimising the risk of any potential drug-drug interaction.. Third-generation tetracycline-class agents are approved for multiple therapeutic indications, including skin and skin structure infections, CABP, and complicated intra-abdominal infection (cIAI) (Table 4). Approval for these indications was based on efficacy and safety data from phase 3 studies using standard-of-care oxazolidinones or glycopeptides, fluoroquinolones, or carbapenems as respective comparators [10,12,57]. These studies were all designed to align with then-current FDA guidance, which leads to some of the differences in endpoints as reported below.. Tigecycline and eravacycline are approved by the FDA for the treatment of complicated IAIs. In the phase 3 IGNITE1 and IGNITE4 studies, eravacycline demonstrated non-inferiority to ertapenem and meropenem, respectively, in patients with cIAI based on clinical efficacy 25–31 days after the first dose of the study drug [67,68]. Clinical efficacy was defined as complete resolution or significant improvement of signs or symptoms of the index infection such that no additional antibacterial therapy, surgical, or radiological intervention was required.. Pooled data across various studies show that nausea and vomiting were the most frequently reported AEs (Table 6). These gastrointestinal AEs are Cmax related and thus dose-limiting; in general, the maximum single dose is 100 mg IV [44]. However, higher doses have been used in an attempt to maximise efficacy, which resulted in increased AEs and discontinuation [81], leading to attempts at reduced dosing of 25 mg once or twice daily in some long-term utilisation studies to minimise gastrointestinal side effects (e.g. [82]).. Patient weight can impact PK and outcomes for some antibiotics, which may therefore require patient-specific dosing. Studies in most third-generation

tetracycline-class antibiotics indicate that no adjustments are needed based on body weight [84], although dosing of eravacycline is based on 1 mg/kg body weight [12]. Efficacy of omadacycline and eravacycline is consistent across body mass index (BMI) groupings [57,85,86], and the PK of tigecycline is similar in patients with class III obesity (BMI ≥40 kg/m2) or healthy weight. As third-generation tetracycline-class drugs do not require dose adjustments for end-stage renal impairment or mild-to-moderate hepatic impairment and have a limited number of DDIs, they provide a suitable therapy option for patients who otherwise could experience reduced efficacy with other antimicrobial agents, and for older adults who are often taking multiple chronic medications.

Pharmacodynamics Drug Interaction: URL: http://www.ncbi.nlm.nih.gov/pmc/articles/pmc5579760/ Paragraphs: Vancomycin use is often associated with nephrotoxicity. It remains uncertain, however, to what extent vancomycin is directly responsible, as numerous potential risk factors for acute kidney injury frequently coexist. Herein, we critically examine available data in adult patients pertinent to this question. We review the pharmacokinetics/pharmacodynamics of vancomycin metabolism. Efficacy and safety data are discussed. The pathophysiology of vancomycin nephrotoxicity is considered. Risk factors for nephrotoxicity are enumerated, including the potential synergistic nephrotoxicity of vancomycin and piperacillin■tazobactam.. Vancomycin is the drug of choice for methicillin■resistant Staphylococcus aureus (MRSA)1 but has been associated with significant nephrotoxicity. It remains uncertain, however, to what extent vancomycin is directly responsible. Herein, we critically examine relevant available data in adult patients. We review the pharmacokinetics/pharmacodynamics of vancomycin metabolism and discuss efficacy and safety data. The pathophysiology of vancomycin nephrotoxicity is considered. Risk factors for acute kidney injury (AKI) development are enumerated, and suggestions for practice and further research are given.. The bactericidal activity of vancomycin is considered time■dependent but concentration■independent.10 Increasing concentrations of vancomycin are not associated with enhanced bacterial killing.10 Rather, the ratio of the 24■h AUC to the minimum inhibitory concentration (AUC/MIC) is the pharmacokinetic/pharmacodynamic parameter best correlated with effectiveness.8 Consensus guidelines published in 2009 by the American Society of Health■System Pharmacists, the Infectious Diseases Society of America (IDSA), and the Society of Infectious Diseases Pharmacists (herein referred to as Guidelines) recommend an AUC/MIC of ≥400.8 Available clinical evidence supports this ratio.11, 12. Alternative methods to guide vancomycin dosing by intermittent infusion have been published. One nomogram is based on population pharmacokinetics and is aimed at targeting a trough level of 15–20 mg/L.31 Based on a priori methodology, individual patient data are not required, although one must be careful that a particular patient matches those used to generate the nomogram. Other nomograms are available. Linear regression analysis applying individual patient parameters (a posteriori) has been used but does require at least two measured serum concentrations and a log linear calculator.32 Bayesian estimation methodology combines a priori population■based data with a posteriori individual patient data (which may be limited to just a trough level23) to calculate dose and interval most accurately,32 and has higher predicative ability to achieve a specific AUC/MIC.33 Bayesian methodology may be the fastest way to achieve therapeutic targets, but requires specific computer software and specialized practitioners and has had limited implementation.. Other factors besides residual renal function contribute to the variability of vancomycin pharmacokinetics during RRT. There may be a prolonged distribution phase, a rebound effect following termination of dialysis, and nonrenal clearance.37 Using standard low■flux dialysis membranes, there is minimal dialytic clearance, and once■weekly dosing suffices.34 Many patients, however, are now dialyzed on synthetic, high■flux dialyzers using membranes that have a much larger pore size and do have significant vancomycin clearance.38. Various modalities of CRRT are available in the ICU setting, including continuous veno■venous hemodialysis (CVVHD), hemofiltration (CVVHF), and hemodiafiltration (CVVHDF). All use synthetic membranes, with significant vancomycin clearance determined primarily by the volume of effluent.36 Clearances of 15–30 ml/min are possible with effluent volumes approaching 3,000 ml/h. A comprehensive discussion of the pharmacokinetics of vancomycin metabolism in various types of intermittent and continuous RRT is beyond the scope of this article.

Clinical Studies: URL: http://www.ncbi.nlm.nih.gov/pmc/articles/pmc7050613/ Paragraphs: We

searched the Cochrane Pregnancy and Childbirth Group's Trials Register (30 November 2014) and reference lists of retrieved studies.. Twenty studies, involving 1918 women, compared clindamycin plus an aminoglycoside (gentamicin for all studies except for one that used tobramycin) with another regimen.. When assessing the individual subgroups of other antibiotic regimens (i.e. cephalosporins, monobactams, penicillins, and quinolones), there were fewer treatment failures in those treated with clindamycin plus an aminoglycoside as compared to those treated with cephalosporins (RR 0.69, 95% CI 0.49 to 0.99; participants = 872; studies = 8; low quality evidence) or penicillins (RR 0.65, 95% CI 0.46 to 0.90; participants = 689; studies = 7, low quality evidence). For the remaining subgroups for the primary analysis, the differences were not significant.. There were significantly fewer wound infections in those treated with clindamycin plus aminoglycoside versus cephalosporins (RR 0.53, 95% CI 0.30 to 0.93; participants = 500; studies = 4; low quality evidence). Similarly, there were more treatment failures in those treated with an gentamicin/penicillin when compared to those treated with gentamIcin/clindamycin (RR 2.57, 95% CI 1.48 to 4.46; participants = 200; studies = 1).. There were fewer treatment failures when an agent with a longer half■life that is administered less frequently was used (RR 0.61, 95% CI 0.40 to 0.92; participants = 484; studies = 2) as compared to using cefoxitin. There were more treatment failures (RR 1.94, 95% CI 1.38 to 2.72; participants = 774; studies = 7) and wound infections (RR 1.88, 95% CI 1.17 to 3.02; participants = 740; studies = 6) in those treated with a regimen with poor activity against penicillin■resistant anaerobic bacteria as compared to those treated with a regimen with good activity against penicillin■resistant anaerobic bacteria.. Once■daily dosing was associated with a shorter length of hospital stay (MD ■0.73, 95% CI ■1.27 to ■0.20; participants = 322; studies = 3).. Regarding the secondary outcomes, three studies that compared continued oral antibiotic therapy after intravenous therapy with no oral therapy, found no differences in recurrent endometritis or other outcomes. There were no differences between groups for the outcomes of allergic reactions.. The overall risk of bias was unclear in the most of the studies. The quality of the evidence using GRADE comparing clindamycin and an aminoglycoside with another regimen (compared with cephalosporins or penicillins) was low to very low for therapeutic failure, severe complications, wound infection and allergic reaction.. There are many antibiotic treatments currently in use. This review compared different antibiotics, routes of administration and dosages for endometritis. The review identified 42 relevant randomised controlled studies, which are the most reliable type of medical trial for this type of investigation; 40 of these (involving 4240 women) contributed data for analysis.. The results showed that the combination of intravenous gentamicin and clindamycin, and drugs with a broad range of activity against the relevant penicillin■resistant bacterial strains, are the most effective for treating endometritis after childbirth. Women treated with clindamycin plus an aminoglycoside (gentamicin) showed fewer treatment failures than those treated with penicillin, but this difference was not evident when women treated with clindamycin plus an aminoglycoside were compared to women who received other antibiotic treatments.. Overall the reliability of the studies' results was unclear, the numbers of women studied were often small and data on other outcomes were limited; furthermore, a number of the studies had been funded by drug companies that conceivably would have had a vested interest in the results.. 1 Most studies contributing data had design limitations 2 Small sample size with confidence interval crossing the line of no effect 3 Estimate based on small sample size. All trials in which the authors described random allocation (by any method) of participants to different treatment regimens for postpartum endometritis were considered. Cluster■randomized trials are eligible for inclusion, but we did not consider cross■over trials suitable for inclusion. We excluded quasi■randomized and pseudo■randomized studies.. Women who were diagnosed with endometritis (as defined by the authors of the individual studies) during the first six weeks of the postpartum period.. We searched the reference lists of retrieved studies.. Two review authors independently assessed all the potential additional studies we identified as a result of the search strategy for inclusion. We resolved any disagreement through discussion or, if required, we consulted a third person.. We designed a form to abstract data. For eligible studies, two review authors abstracted the data using the agreed form. We resolved discrepancies through discussion or, if required, we consulted a third person. We entered data into Review Manager software and checked for accuracy (RevMan 2014).. For each included study we described the methods used, if any, to blind study participants and personnel from knowledge of which intervention a participant received. We considered that studies are at low risk of bias if they were

blinded, or if we judge that the lack of blinding would be unlikely to affect results. We assessed blinding separately for different outcomes or classes of outcomes.. We made explicit judgements about whether studies are at high risk of bias, according to the criteria given in the Cochrane Handbook for Systematic Reviews of Interventions (Higgins 2011). With reference to (1) to (6) above, we assessed the likely magnitude and direction of the bias and whether we considered it was likely to impact on the findings. We explored the impact of the level of bias through undertaking sensitivity analyses ■ see Sensitivity analysis.. For dichotomous data, we presented results as summary risk ratio with 95% confidence intervals.. If we identify both cluster■randomized trials and individually■randomized trials, we plan to synthesize the relevant information. We will consider it reasonable to combine the results from both if there is little heterogeneity between the study designs and the interaction between the effect of intervention and the choice of randomization unit is considered to be unlikely.. For included studies, we noted levels of attrition. In future updates, we will explore the impact of including studies with high levels of missing data in the overall assessment of treatment effect by using sensitivity analysis.. As there are more than 10 studies in the meta■analysis we investigated reporting biases (such as publication bias) using funnel plots. We assessed funnel plot asymmetry visually. If asymmetry had been suggested by a visual assessment, we would have performed exploratory analyses to investigate it.. We carried out statistical analysis using the Review Manager software (RevMan 2014). We used fixed■effect meta■analysis for combining data where it was reasonable to assume that studies were estimating the same underlying treatment effect, i.e. where trials were examining the same intervention, and the trials' populations and methods were judged to be sufficiently similar. If there was clinical heterogeneity sufficient to expect that the underlying treatment effects differed between trials, or if substantial statistical heterogeneity was detected, we used random■effects meta■analysis to produce an overall summary if an average treatment effect across trials was considered clinically meaningful.. If we used random■effects analyses, we presented the results as the average treatment effect with 95% confidence intervals, with the estimates of Tau^2 and I^2.. A priori, we had planned subgroup analyses based on the presence of risk factors such as mode of delivery or genital tract infections, if an adequate number of studies were available. We planned a separate sub analysis including only those studies in which all participants had received prophylactic antibiotic treatment during cesarean birth, if an adequate number of studies were available. However, there were not enough studies available to perform the planned subgroup analyses. We also planned to perform sensitivity analyses based on methodological quality if necessary.. Given that in all but five of the studies, treatment allocation was inadequately described, we did not perform a sensitivity analysis incorporating allocation concealment as a measure of study quality as this was not appropriate.. We assessed subgroup differences by interaction tests available within RevMan (RevMan 2014). We reported the results of subgroup analyses quoting the Chi^2 statistic and P value, and the interaction test I^2 value.. We excluded studies from the analysis when more than 20% of participants dropped out or were excluded after randomization. In future updates, we will carry out sensitivity analyses to explore the effect of trial quality assessed by concealment of allocation, high attrition rates, or both, with poor quality studies being excluded from the analyses in order to assess whether this makes any difference to the overall result.. A positive microbiological diagnosis was rarely required for the diagnosis of either wound infection or endometritis. There was no consistent approach to the definition of serious morbidity. For this review, all episodes of bacteremia have been classified as serious, as have complications such as pelvic thrombophlebitis, pelvic abscess, and peritonitis. Some studies included other outcomes, for example the need for additional antibiotic use and other infections such as pneumonia. Some provided a measure of the fever as a 'fever index' which incorporated both the height of the fever and its duration.. For a detailed description of included studies, see the table of Characteristics of included studies.. All, but seven studies were conducted in the United States: one was conducted in France, two in Mexico, and one each in Italy, Peru, and Colombia. One study was a multicenter study conducted in many countries, including the United States.. The studies that contributed data to this meta■analysis compared several different antibiotic regimens. Twenty studies compared clindamycin plus an aminoglycoside (typically gentamicin) with another regimen. Other comparisons included:. Twenty studies enrolled only postpartum women who developed endometritis after cesarean birth; in four studies, the mode of delivery was not reported. In the remainder, a variable proportion of cases

followed cesarean birth. In women who developed endometritis postcesarean birth there was no consistent approach to the use of prophylactic antibiotics. While four studies excluded women who had received prophylaxis, five others stated that all women had received prophylaxis. Cefazolin was the agent selected when prophylaxis was given except in one study in which cefoxitin was used (Tuomala 1989).. We excluded 30 studies identified in the search from the analysis for the following reasons:. None of the five studies we identified that compared an extended spectrum penicillin with any other regimen met the methodological criteria for inclusion in this review. See Characteristics of excluded studies.. For risk of bias for included studies, see the risk of bias tables, Figure 1; and Figure 2. The risk of bias information below pertains only to those studies that contributed data to this meta■analysis.. Risk of bias graph: review authors' judgements about each risk of bias item presented as percentages across all included studies.. In all of the studies, women were randomly allocated to treatment groups as per the inclusion criteria. Allocation concealment was sufficiently described and considered to be adequate in only five studies (Del Priore 1996; Filler 1992; Gibbs 1982; MacGregor 1992; Mitra 1997). For the remaining studies, the adequacy of allocation of participants to treatment groups was unclear. Although many of these studies did report that a computerized randomization schedule was used, it was unclear how the randomization schedule was actually administered.. Blinding was described in only a few studies. Only four studies used placebo doses and, although nine studies reported a 'double■blind' design, only three studies described how they attempted to ensure the medications appeared similar in appearance (Gibbs 1982; Gibbs 1983; Hillier 1990). One other study stated that interventions were similar in appearance without describing how this was accomplished (MacGregor 1992). Three studies were described as 'single■blind'. In most trials there was no description of blinding.. To reduce the likelihood of bias, we excluded studies in which more than 20% of participants had dropped out or been excluded form the analysis after randomization.. Pharmaceutical sponsorship was evident in 18 studies, which were therefore judged as being at high risk of bias. We judged eight studies to have an unclear additional bias. For three studies we had truncated versions of the original publication that were only partially translated from the initial language (Figueroa■Damian 1996; Gutierrez 1994; Rodriguez 1996). We suspected that three studies had pharmaceutical sponsorship, but this was not overtly reported (Apuzzio 1985a; Apuzzio 1985b; Hemsell 1983).. Among all the comparisons reported, there was no evidence that any particular regimen was associated with a different rate of allergic reactions. Despite the large number of trials and different antibiotic regimens, only one comparison revealed statistical heterogeneity (Analysis 2.1); therefore we applied random■effects analyses. Given that in all but five of the studies, treatment allocation was inadequately described, we did not perform a sensitivity analysis incorporating allocation concealment as a measure of study quality as this was not appropriate.. Twenty studies, involving 1918 women, compared clindamycin plus an aminoglycoside (gentamicin used for all studies except for Pastorek 1987 that used tobramycin) with another regimen (Apuzzio 1985a; Apuzzio 1985b; Blanco 1983; DiZerega 1979; Faro 1989; Gaitan 1995; Gall 1996; Gibbs 1982; Gibbs 1983; Gibbs 1985; Greenberg 1987; Gutierrez 1994; Hemsell 1983; Herman 1986; Knodel 1988; Maccato 1991; McGregor 1989; Pastorek 1987; Pietrantoni 1998; Stovall 1993).. When assessing the individual subgroups of other antibiotic regimens (i.e. cephalosporins, monobactams, penicillins, and quinolones), there were fewer treatment failures in those treated with clindamycin plus an aminoglycoside as compared to those treated with cephalosporins (RR 0.69, 95% CI 0.49 to 0.99; participants = 872; studies = 8; Analysis 1.1.1) or penicillins (RR 0.65, 95% CI 0.46 to 0.90; participants = 689; studies = 7, Analysis 1.1.3). For the remaining subgroups, the differences were not significant.. There were no significant differences between groups with respect to severe complications (Analysis 1.2): lincosamides versus cephalosporins (RR 2.40, 95% CI 0.30 to 19.19; 476 participants; 4 studies; I^2 0%, Analysis 1.2.1), lincosamides versus monobactams had only one study with no events (Analysis 1.2.2), lincosamides versus penicillins (RR 0.33, 95% CI 0.09 to 1.18; 422 participants; 5 studies; I^2 24%, Analysis 1.2.3), lincosamides versus quinolone (RR 2.89, 95% CI 0.31 to 27.20; participants = 160; studies = 2; Analysis 1.2.4).. There were significantly fewer wound infections with clindamycin plus aminoglycoside versus cephalosporins (RR 0.53, 95% CI 0.30 to 0.93; 500 participants; 4 studies, I^2 0%, Analysis 1.3,1). There was no statistically significant difference with other comparison subgroup analysis for wound infections with clindamycin plus aminoglycoside versus monobactams (RR 0.95, 95% CI 0.06 to

14.85; 119 participants; 1 study, Analysis 1.3.2) or penicillins (RR 0.46, 95% CI 0.21 to 1.00; 339 participants; 3 studies, Analysis 1.3.3) or quinolone ((RR 0.51, 95% CI 0.05 to 5.45; participants = 97; studies = 1, Analysis 1.3.4).. There were no differences in treatment failures in any subgroup; e.g. penicillin plus beta■lactamase inhibitor versus lincosamides (RR 1.07, 95% CI 0.70 to 1.64; participants = 495; studies = 6; I^2 = 0%, , Analysis 3.1) as well as no difference in severe complication (RR 0.11, 95% CI 0.01 to 2.04, Analysis 3.2).. Treatment with an agent with a longer half life that is administered less frequently was associated with fewer treatment failures (RR 0.61, 95% CI 0.40 to 0.92; 484 participants; 2 studies; I^2 0%, Analysis 5.1) than cefoxitin. No significant differences were found for severe complications (Analysis 5.2). There was a non■significant trend toward fewer treatment failures with once■daily dosing (RR 0.70, 95% CI 0.49 to 1.00; 463 participants; 4 studies; I^2 29%, Analysis 7.1).. There was no difference in the incidence of nephrotoxicity between regimens (Analysis 7.2). Once■daily dosing was associated with a shorter length of hospital stay (MD ■0.73, 95% CI ■1.27 to ■0.20; 322 participants; 3 studies; I^2 0%, Analysis 7.3).. No differences were found in treatment failure (Analysis 8.1). There were no severe complications in the studies (Analysis 8.2).. Antibiotics with poor activity against penicillin■resistant anaerobes were associated with higher failure rates of the regimen (RR 1.94, 95% CI 1.38 to 2.72; 774 participants; 7 studies; I^2 23%, Analysis 9.1). There were no significant differences in severe complications (Analysis 9.2).. Antibiotics with poor activity against penicillin resistant anaerobes were associated with more wound infections (RR 1.88, 95% CI 1.17 to 3.02; 740 participants; 6 studies; I^2 0%, Analysis 9.3).. If the improved response with clindamycin and gentamicin compared with any other regimen is expressed as the number needed to treat for an additional beneficial outcome (NNTB), 20 women (95% confidence interval (CI) 12 to 56) would need to be treated with clindamycin and gentamicin, rather than any other regimen, to prevent one additional treatment failure. What is missing from these studies, however, and what is needed to use the NNTB to help make treatment decisions, is a better assessment of side■effects of the regimens and reporting of the cost of the different therapies.. Overall the studies were at an unclear risk of bias. There were opportunities for systematic bias: allocation concealment was usually inadequately described and only rarely was there any attempt at 'blinding'. Often the study was sponsored by the manufacturer of a new drug and this drug was compared with the control regimen, typically clindamycin plus gentamicin. But despite all these potential biases, which would most likely work against the control arm, the combination of clindamycin and an aminoglycoside was more effective than other regimens with fewer treatment failures and wound infections.. Although there may be differences in the expected response of women who developed endometritis after cesarean birth compared with those who developed infection after a vaginal birth, insufficient data were provided to allow us to perform a subgroup analysis. We could not perform subgroup analyses based on the presence of bacterial vaginosis or genital tract cultures positive for virulent organisms, as the data were not available. There were too few studies to detect whether there are differences in outcomes between regimens when prophylactic antibiotics have been given for cesarean births.. Many of the studies performed extensive bacteriological work■up on endometrial cultures, but this could not be approached systematically nor incorporated into this review.. The overall risk of bias was unclear in the most of the studies. We assessed the quality of the evidence using GRADE and judged the evidence for an aminoglycoside plus clindamycin with another regimen compared with cephalosporins or penicillins as low to very low quality for therapeutic failure, severe complications, wound infection and allergic reaction (Table 1). We downgraded scores as most studies had design limitations, few events, and wide confidence intervals crossing the line of no effect.. Though drop■outs were reported with reasons explained, frequently, the number corresponding to each arm of a study was not given. For this reason we have provided analysis of available cases (rather than intention■to■treat). Many of the studies date back to the 1970s and 1980s. Since then there may have been changes in the causative organisms, as well as in the antimicrobial resistance profile.. Very few studies have been conducted outside of the USA, with only four studies (from Central and South America) performed in the developing world. Since postpartum endometritis is an important cause of maternal morbidity and mortality in low■income countries, the lack of studies conducted in such environments leaves a gap in our knowledge.. Although the studies included in this review did not collect information systematically on renal toxicity, there is no evidence that using an aminoglycoside in the clinical setting of postpartum endometritis should not be

recommended because of toxicity. It is, however, important that any new regimen that is compared with clindamycin and an aminoglycoside should include ototoxicity and nephrotoxicity as outcomes.. The majority of these studies took a traditional approach to the treatment of endometritis and compared new regimens to the standard of care in North America. Any further studies that compare clindamycin and an aminoglycoside with an alternative regimen, with efficacy as the primary outcome, should include regimens that are routinely used outside of North America and consider alternatives suitable for use in low■income countries.. Traditionally an empiric regimen active against the mixed aerobic and anaerobic organisms likely to be causing infection is selected, but with increasing concern about the appropriate utilization of antibiotics and developing antimicrobial resistance, this approach may no longer be appropriate. We should ask whether the use of endometrial cultures, collected under conditions where contamination is avoided, has a role for targeting antibiotic therapy more specifically to individual women. Studies may be designed that compare different strategies for selecting an antibiotic regimen.. We would like to thank Becky Davie and Sally Reynolds, student medical statisticians, who helped with the risk of bias assessments of some included studies.. Erika Ota and Roger E Packard independently rated all the included studies for the risk of bias tables from the previous review and also applied the study selection criteria and abstracted data from the included studies for updates. A Dhanya Mackeen, Roger E Packard and Erika Ota revised the manuscript. A Dhanya Mackeen, Roger E Packard and Erika Ota reconfirmed that previously entered data had been correctly abstracted and changed data entry as necessary. Linda Speer developed the original review (French 2004).

Overview of Safety: URL: http://www.ncbi.nlm.nih.gov/pmc/articles/pmc6789778/ Paragraphs: Cephalosporins are among the most commonly prescribed antibiotic classes due to their wide clinical utility and general tolerability, with approximately 1–3% of the population reporting a cephalosporin allergy. However, clinicians may avoid the use of cephalosporins in patients with reported penicillin allergies despite the low potential for cross-reactivity. The misdiagnosis of β-lactam allergies and misunderstanding of cross-reactivity among β-lactams, including within the cephalosporin class, often leads to use of broader spectrum antibiotics with poor safety and efficacy profiles and represents a serious obstacle for antimicrobial stewardship.. The most commonly reported cephalosporin allergies include skin manifestations (1–5%), such as maculopapular or morbilliform skin eruption, followed by drug fevers (0.5–0.9%), eosinophilia (2–10%) and anaphylaxis (<0.1%) [2,64]. Regarding serious cephalosporin allergies, Macy and Contreras reported the incidence of anaphylaxis or serious cutaneous adverse reactions to oral or parenteral cephalosporins to be <0.0001% from the electronic claims data from 3.9 million patients and 1.3 million courses of cephalosporin therapy. Data describing specific risk factors for cephalosporin allergies are limited, and unsurprisingly include a history to penicillin and/or a cephalosporin [2,46]. It is therefore difficult to predict which patients are at high risk of cephalosporin allergy, and a more meaningful approach to cephalosporin allergy risk assessment is to individualize therapy and cross-reaction potential based on patient allergy history.. The investigators also found a 4.8 higher odds (95% CI, 3.7–6.2) of allergic reaction in patients who had received first generation cephalosporins and the second generation cephalosporin cefamandole when compared to other classes of cephalosporins. A potential explanation for these findings could be attributed to similar side chains of penicillin and 1st generation cephalosporins, or that penicillin-allergic patients can display a three-fold increased risk of adverse reactions to any unrelated drugs

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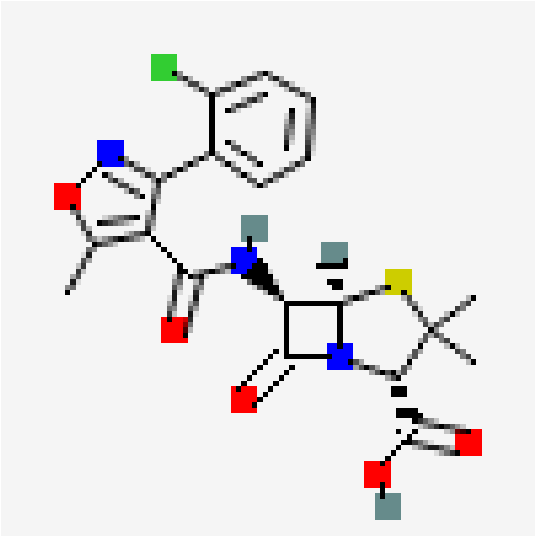
Benefits/Risks: URL: http://www.ncbi.nlm.nih.gov/pmc/articles/pmc9830410/ Paragraphs: More than half of pregnant women are usually affected by odontogenic pain affects. Pain often accompanies periapical or pulp infections and increases the risks to pregnant patients and their fetuses. The American Dental Association, in partnership with the American College of Obstetricians and Gynecologists, has offered a strong declaration reaffirming the significance of suitable and timely oral health care as an indispensable constituent of a healthy pregnancy. However, there is lack of knowledge about the use of antibiotics in endodontic treatment.. Oral disease in pregnant women is a

major public health issue worldwide.1 Pregnancy does come with inherent risks and the idea that dental treatment should not be implemented due to pregnancy is not debatable. Special concerns are necessary as a pregnant woman seeks dental care;2,3 hence, the treatment related to these patients may need more attention to reduce treatment time and make changes in the type of dental treatment and prescribed drugs.4 Appropriate risk assessment for the mother and fetus should be performed.3According to results of a novel study about pregnant women, it was recognized that more than 43% of them have oral health problems, containing odontogenic infections and pain.5. According to the obtained results of some studies in Canada and Netherlands, about 25% to 50% of pregnant women have received antibiotics.21,22 However, it is necessary to prescribe antibiotics to pregnant women after evaluating their disadvantages and advantages.23 It should also be noted that infections can be dangerous for both mother and fetus. For example, one of the risks of spreading infection from the mandibular second molars is the possibility of Ludwig's angina.24,25. Category D: Antibiotics that have side effects, but they have been proven in pregnancy, but when necessary, their benefits are more than their disadvantages.. Despite the low percentage of births less than 32 weeks' gestation (only 1% to 2% of all births), they are reason for 50% of long-term neurological problems as well as 60% of prenatal deaths.43,47 Pointing to the financial issues, preterm labor is remarkably significant as one-tenth of the cost of general child care and one-third of the cost of caring for infants is related to preterm labor.48,61During the two past decades, many kinds of investigations have underlined the reasons of preterm labor and consequently various correlated risk elements have been recognized.62 Most common reported ones are congenital causes of infectious origin.63-65 The possible associations between preterm labor and infection can be explained by models that claim that preterm labor is initiated by an inflammatory reaction to pro-inflammatory cytokines such as IL-6, IL-8, interleukin (IL). In conclusion, according to the results of researches, aspecifically evidences published by the American Dental Association with American Obstetricians, the use of some antibiotics during pregnancy are allowed and can be used normally and safely by pregnant women.



Img 1: Molecule structure of penicillin (Source: PubChem)