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Preparation for Gynecologic surgery: ANMC

Antibiotic prophylaxis

Prophylaxis refers to the prevention of an infection and can be characterized as primary prophylaxis, secondary prophylaxis, or eradication. Primary prophylaxis refers to the prevention of an initial infection. Secondary prophylaxis refers to the prevention of recurrence or reactivation of a preexisting infection. Eradication refers to the elimination of a colonized organism to prevent the development of an infection. This guidelines focus on primary perioperative prophylaxis.

Regimen

The recommended regimen for women undergoing vaginal or abdominal hysterectomy, using an open or laparoscopic approach, is a single dose of cefazolin. Cefoxitin, cefotetan, or ampicillin–sulbactam may also be used. (Please see ANMC Intranet: ANMC Surgical Prophylaxis)

Alternative agents for patients with a β-lactam allergy include:

(1) either clindamycin or vancomycin plus an aminoglycoside, aztreonam, or a fluoroquinolone and
(2) (2) metronidazole plus an aminoglycoside or a fluoroquinolone.

(Strength of evidence for prophylaxis = A.)

Administration and duration

Studies comparing single doses of one antimicrobial with multidose regimens of a different antimicrobial have shown the two regimens to be equally effective in reducing the postoperative infection rate in women undergoing vaginal and abdominal hysterectomies.

The limited comparative trials involving single-dose cefazolin or ampicillin–sulbactam indicate that a single dose of antimicrobial is sufficient prophylaxis for SSIs for vaginal hysterectomy. Single doses of cefotetan, ceftizoxime, or cefotaxime appear to be as effective as multiple doses of cefoxitin.

A second dose of antimicrobial is warranted when the procedure lasts three hours or longer or if blood loss exceeds 1500 mL.

The majority of these agents should be administered approximately 30 minutes before incision and not more than one hour before. Administration of vancomycin and fluoroquinolones should begin 60-120 minutes before surgical incision, because of the prolonged infusion times required for these drugs.

Which procedures need prophylaxis?

Please see Table 1

Vaginal, Abdominal, Laparoscopic, or Robotic Hysterectomy

Patients undergoing vaginal, abdominal, laparoscopic, or robotic hysterectomy, including supracervical hysterectomy, should receive single-dose antimicrobial prophylaxis. Single-dose cefazolin is currently recommended as the prophylactic antibiotic of choice for hysterectomy.

Other Laparoscopic and Laparotomy Procedures
Antibiotic prophylaxis is not recommended for patients undergoing diagnostic or operative laparoscopy (for indications other than hysterectomy) in which entry of the bowel or vagina is not anticipated. Although laparotomy is classified as a clean procedure like laparoscopy, single-dose antibiotic prophylaxis may be considered for laparotomy based on limited evidence that shows benefit

Hysterosalpingography, Chromotubation, Sonohysterography, and Hysteroscopy
The risk of infection associated with HSG and chromotubation is related to the patient's history of PID. Antimicrobial prophylaxis is recommended for patients undergoing HSG or chromotubation if they have a history of PID or their fallopian tubes are noted to be abnormal at the time of the procedure.

Uterine Evacuation
Antimicrobial prophylaxis should be administered to women undergoing uterine evacuation for induced abortion. In a meta-analysis of perioperative antibiotics to prevent infection after first-trimester abortion, use of prophylactic antibiotics reduced postabortal infection by 41%.

Colporrhaphy and Vaginal Slings
Patients undergoing anterior or posterior colporrhaphy or transvaginally placed slings are candidates for antimicrobial prophylaxis. The Society for Gynecologic Surgeons Systematic Review Group (52) identified two small randomized trials of antibiotic prophylaxis in women undergoing vaginal surgery without hysterectomy and concluded there was insufficient information to guide decision making. However, antibiotic prophylaxis is reasonable because the vaginal epithelium is incised, and the resulting operative wound is classified as clean-contaminated.

Other procedures
See Table 1

Source:
Prevention of infection after gynecologic procedures. ACOG Practice Bulletin No. 195. American College of Obstetricians and Gynecologists. Obstet Gynecol 2018;131:e172–89.

References:

Bratzler DW et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. Am J Health Syst Pharm. 2013 Feb 1;70(3):195-283.
http://www.ajhp.org/content/70/3/195?sso-checked=true

Prevention of infection after gynecologic procedures. ACOG Practice Bulletin No. 195. American College of Obstetricians and Gynecologists. Obstet Gynecol 2018;131:e172–89.

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Table 1. Recommended Antibiotic Prophylactic Regimens by Procedure

Procedure	Antibiotic	Dose (single dose within 1 hour before procedure)*†
Hysterectomy (including supracervical)‡ Vaginal Abdominal Laparoscopic Robotic	Cefazolin	2 g, 3 g IV for patients weighing >120 kg§
Uterine evacuation Suction D&C D&E	Doxycycline	200 mg‖
Colporrhaphy	Cefazolin	2 g, 3 g IV for patients weighing >120 kg§¶
Vaginal sling placement	Cefazolin	2 g, 3 g IV for patients weighing >120 kg§¶
Laparotomy without entry into bowel or vagina	Consider cefazolin	2 g, 3 g IV for patients weighing >120 kg§#
Cervical tissue excision procedures (LEEP, biopsy, endocervical curettage)	Not recommended	
Cystoscopy**	Not recommended	
Endometrial biopsy	Not recommended	
Laparoscopic procedures without entry into bowel or vagina	Not recommended	
Hysterosalpingogram††	Not recommended	
Chromotubation Saline infusion sonography		
Hysteroscopy Operative Diagnostic	Not recommended	
Intrauterine device insertion	Not recommended	
Oocyte retrieval	Not recommended	
D&C for nonpregnancy indications	Not recommended	
Urodynamics**	Not recommended	

Abbreviations: D&C, dilation and curettage; D&E, dilation and evacuation; LEEP, loop electrosurgical excision procedure.

*In surgical cases with blood loss greater than 1,500 mL, a second dose of the prophylactic antibiotic may be appropriate (Anderson DJ, Podgorny K, Berrios-Torres SI, Bratzler DW, Dellinger EP, Greene L, et al. Strategies to prevent surgical site infections in acute care hospitals: 2014 update. Infect Control Hosp Epidemiol 2014;35(suppl 2):S66–88; Bratzler DW, Dellinger EP, Olsen KM, Perl TM, Auwaerter PG, Bolon MK, et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. American Society of Health-System Pharmacists, Infectious Diseases Society of America, Surgical Infection Society, Society for Healthcare Epidemiology of America. Am J Health Syst Pharm 2013;70:195–283; *and* Swoboda SM, Merz C, Kostuik J, Trentler B, Lipsett PA. Does intraoperative blood loss affect antibiotic serum and tissue concentrations? Arch Surg 1996;131:1165–71; discussion 1171–2).

†For lengthy procedures, additional intraoperative doses of an antibiotic, given at intervals of two times the half-life of the drug measured from the initiation of the preoperative dose, not from the onset of surgery (for cefazolin this is 4 hours), maintain adequate levels throughout the operation (Bratzler DW, Dellinger EP, Olsen KM, Perl TM, Auwaerter PG, Bolon MK, et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. American Society of Health-System Pharmacists, Infectious Diseases Society of America, Surgical Infection Society, Society for Healthcare Epidemiology of America. Am J Health Syst Pharm 2013;70:195–283).

‡Screening for bacterial vaginosis in women undergoing hysterectomy can be considered.

§Joint guidelines from the American Society of Health-System Pharmacists, Infectious Diseases Society of America, Surgical Infection Society, and the Society for Healthcare Epidemiology of America recommend cefazolin 2 g as the standard prophylactic dose, with 3 g for patients who weigh more than 120 kg (Bratzler DW, Dellinger EP, Olsen KM, Perl TM, Auwaerter PG, Bolon MK, et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. American Society of Health-System Pharmacists, Infectious Diseases Society of America, Surgical Infection Society, Society for Healthcare Epidemiology of America. Am J Health Syst Pharm 2013;70:195–283). The rationale for the 2-g dose in all patients who weigh 120 kg or less is to simplify the dosage. Older studies and previous ACOG guidelines recommended a 1-g dose, which still can be considered for patients who weigh 80 kg or less.

‖Early pregnancy loss. Practice Bulletin No. 150. American College of Obstetricians and Gynecologists. Obstet Gynecol 2015;125:1258–67.

¶Antibiotic prophylaxis for colporrhaphy and vaginal sling placement is extrapolated from the standard prophylactic regimen recommended for other clean-contaminated vaginal procedures.

#Although laparotomy without entry into bowel or vagina is classified as a clean procedure, single-dose antibiotic prophylaxis may be considered based on limited evidence that shows benefit (Morrill MY, Schimpf MO, Abed H, Carberry C, Margulies RU, White AB, et al. Antibiotic prophylaxis for selected gynecologic surgeries. Society of Gynecologic Surgeons Systematic Review Group. Int J Gynaecol Obstet 2013;120:10–5).

**Most units rule out urinary tract infection with a urinalysis before testing, with urine culture performed to confirm findings suggestive of infection. Patients with positive test results should be given antibiotic treatment.

††Antimicrobial prophylaxis is recommended for women undergoing HSG or chromotubation with a history of PID or abnormal tubes noted on HSG or laparoscopy. For these women, an antibiotic prophylaxis regimen of doxycycline, 100 mg twice daily for 5 days, can be considered to reduce the incidence of postprocedural PID (Pittaway DE, Winfield AC, Maxson W, Daniell J, Herbert C, Wentz AC. Prevention of acute pelvic inflammatory disease after hysterosalpingography: efficacy of doxycycline prophylaxis. Am J Obstet Gynecol 1992;167:622–6; *and* Pereira N, Hutchinson AB, Lekovich JP, Hoballa F, Elias RT. Antibiotic prophylaxis for gynecologic

Low risk Procedures, with one or no comorbidities Cardiac risk < 1%	Laparoscopy: Diagnostic, BTL, cystectomy, salpingo-ophorectomy, ectopics Hysteroscopy: Diagnostic, operative, ESSURE Prolapse: Uncomplicated TVH TOT, TVT, APR, colpoclesis, perineorrhaphy, SSLS, USLS Other: D+ C, cone bx, Bartholin's gland, endometrial ablation, cerclage, postpartum tubal ligation	No labs required
Intermediate risk Procedures Cardiac risk 1-5%	TAH, complex TVH, staging, exploratory laparotomy, upper abdominal incision, procedure anticipated to last longer than 3 hrs	Labs based on co-morbid disease state as outlined in lab grid
High risk Procedures Cardiac risk > 5%	Emergent major cases, anticipated EBL > 1,000 cc	Minimum labs include: EKG, CBC, and complete metabolic panel, plus labs based on co-morbid disease state as outlined in lab grid

Intermediate and High Risk Procedures Testing Grid

	Patient Type	ECG	CBC	Chem 8	HbA1c	PT/ INR	PTT	UA	Chem 14	LFTs	CXR	T&S	Urine HCG under 50
	Age over 65 years	X											
Cardiac	Cardiac Disease (MI, CHF, Pacemaker/AICD, Coronary Stents)	X	X	X									
	Hypertension	X[5]											
	Vascular Disease (peripheral or cerebral)	X	X										
Other Co-Morbid Diseases	Pulmonary Disease (COPD, Asthma)		X								X[2]		
	Renal Insufficiency		X	X									
	End Stage Renal Disease (on dialysis)	X	X	X									
	Hepatic Disease		X			X	X		X	X			
	Diabetes	X[3]		X[6]	X								
	Symptoms of UTI							X					
Medication	Chemotherapy		X[4]										
	Diuretics			X[6]									
	Anticoagulants (Coumadin)		X			X[6]							
	Anitcoagulants (Heparin)						X[6]						
	Digoxin			X									
Procedure	Intermediate Risk Procedure		X									X	
	High Risk Procedure (Cardiac or Thoracic)	X	X						X			X	
	Menstruating female												X
	Summary												

EKG: Results good for 6 months (without clinical change)

LAB: Results good for 3 months (without clinical change)

- X[1] Only if on diuretics
- X[2] Only if clinical picture has deteriorated or acute change in disease (not routine)
- X[3] DM age >50 years or DM > 10 years duration
- X[4] Only if actively receiving chemotherapy
- X[5] age >50 years or HTN >10years
- X[6] labs need to be obtained within 24 hours of surgery