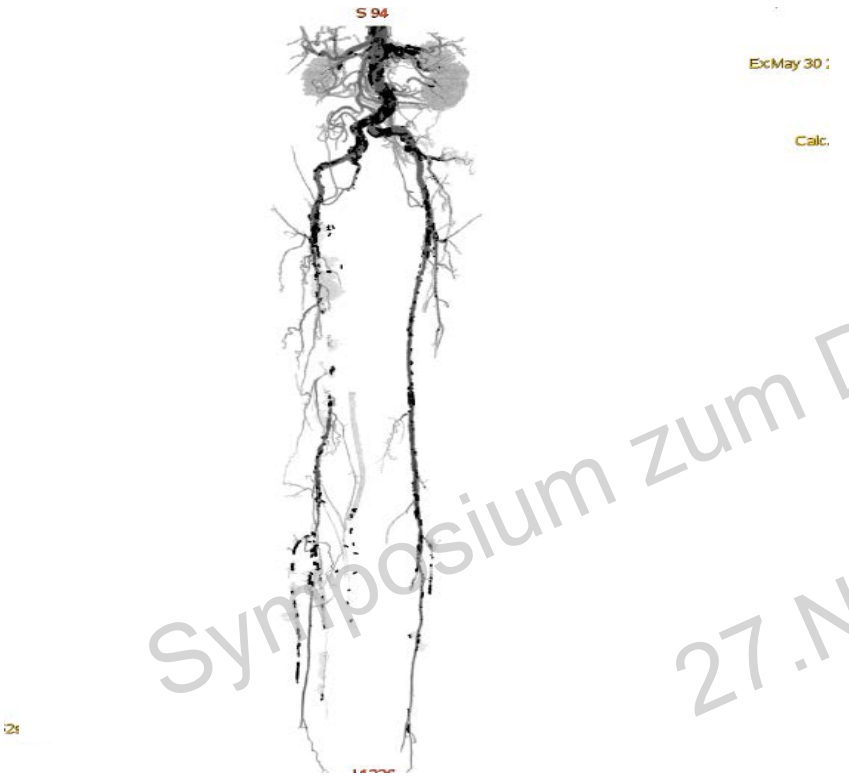
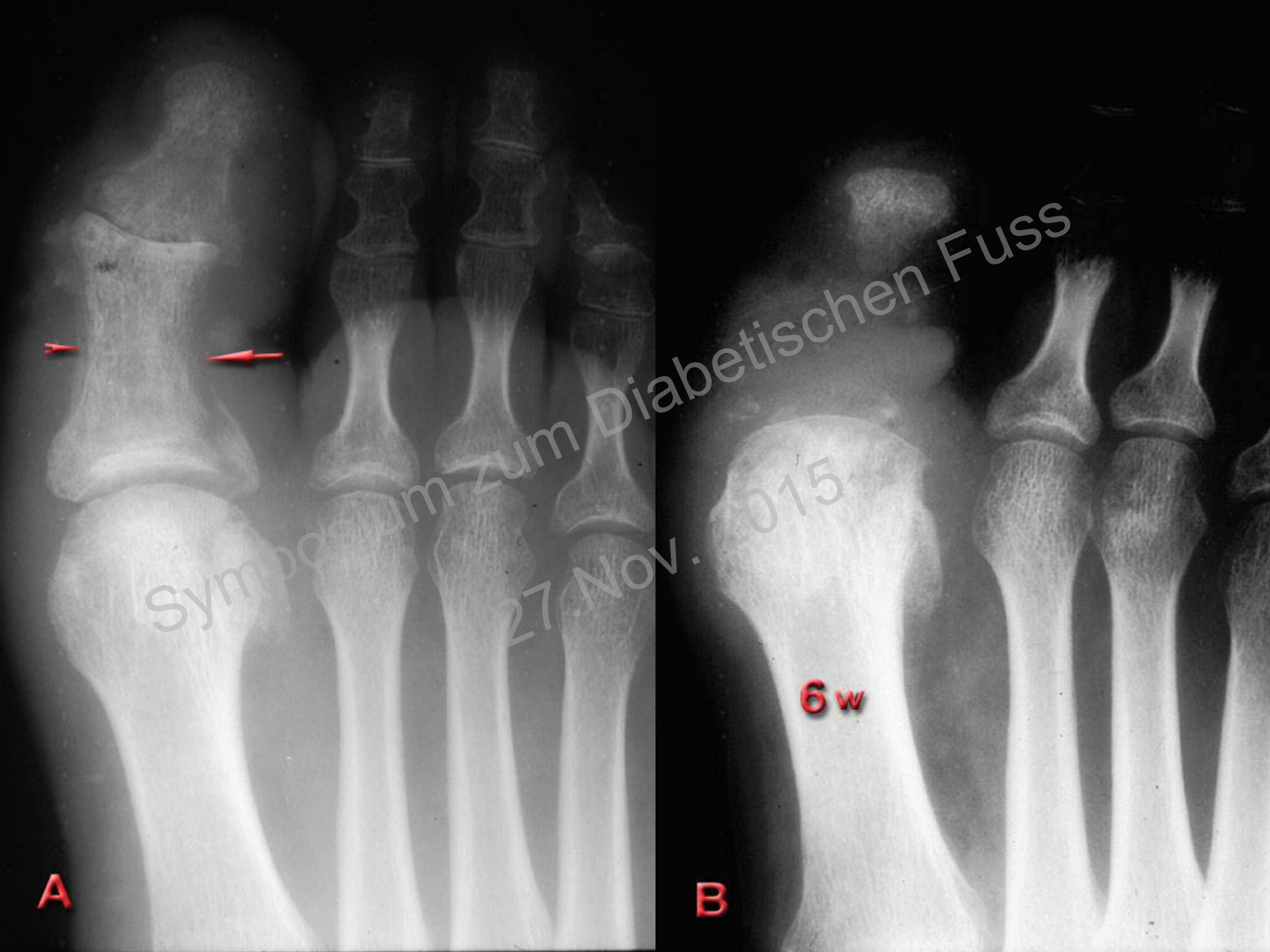
Diabetic foot osteomyelitis



Ilker Uçkay

UNIVERSITÉ DE GENÈVE
FACULTÉ DE MÉDECINE

HUG
Hôpitaux Universitaires de Genève




‘Sausage toe’
Symposium zum Diabetischen Fuss
27 Nov. 2015


Symposium zum Diabetischen Fuss
27.Nov. 20

Probing to bone in infected pedal ulcers. A clinical sign of underlying osteomyelitis in diabetic patients.

Grayson ML, Gibbons GW, Balogh K, Levin E, Karchmer AW. 1985

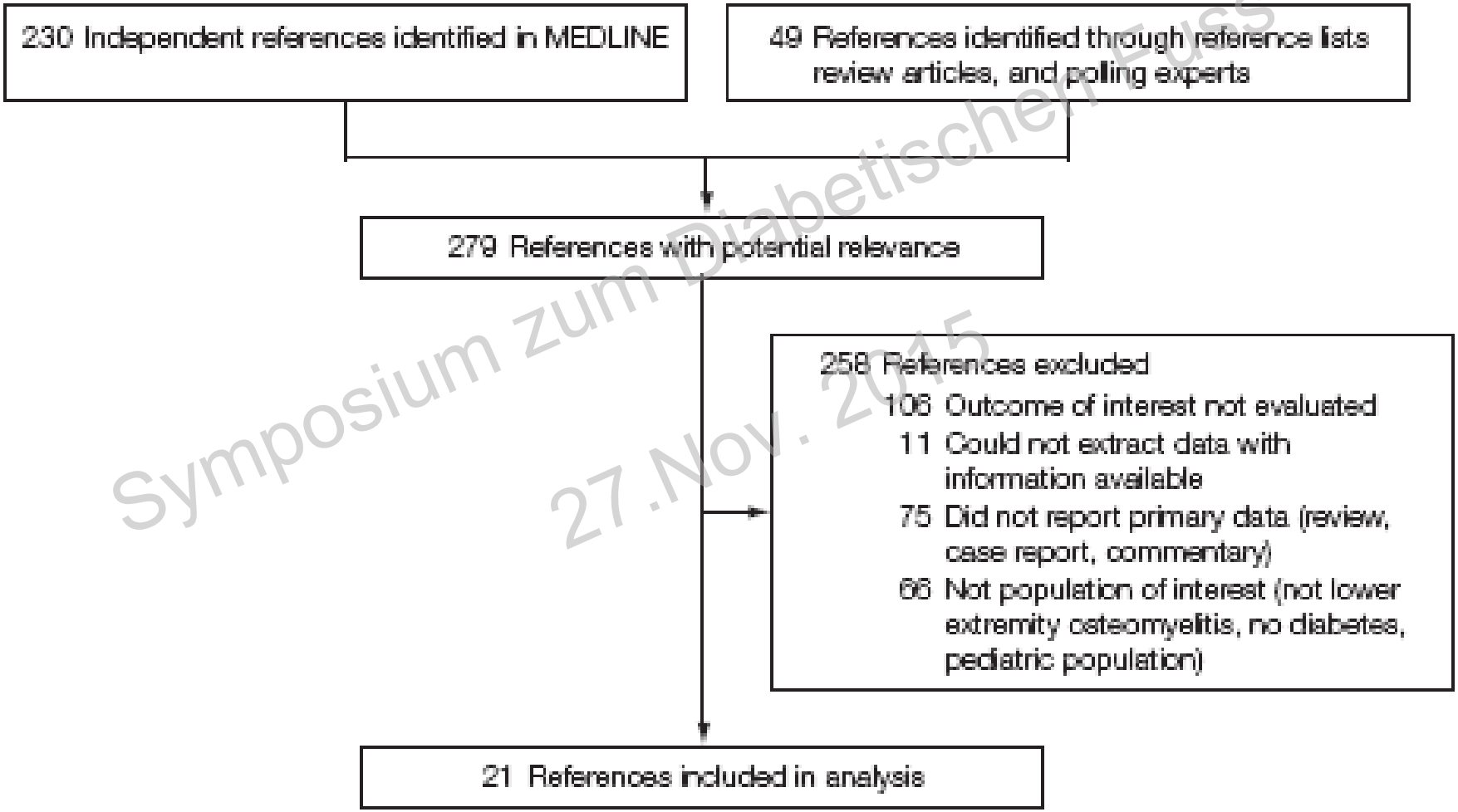
Prospectively.

Osteomyelitis defined histopathologically and/or clinically.

Sensitivity of 66%, specificity of 85%, positive predictive value of 89%, and a negative predictive value of 56%.

Who has an osteomyelitis ?

Figure. Study Selection



Butalia et al. *Does This Patient With Diabetes Have Osteomyelitis of the Lower Extremity?* *JAMA, February 20, 200 Vol 299*

Table 2. Diagnostic Accuracy of Physical Examination and Laboratory Investigations for Lower Extremity Osteomyelitis in Patients With Diabetes Mellitus

Source	Examination Maneuver/Finding	Positive LR (95% CI)	Negative LR (95% CI)
	Signs		
Lavery et al, 2007[30]	Positive probe-to-bone finding[a]	9.4 (6.1-15)	0.15 (0.06-0.37)
Grayson et al, 1995[10]	Positive probe-to-bone finding[a]	4.3 (1.7-10)	0.40 (0.26-0.61)
Shone et al, 2006[26]	Positive probe-to-bone finding[a]	4.5 (1.8-11)	0.68 (0.48-0.95)
Summary LR		6.4 (3.6-11)	0.39 (0.20-0.76)
Newman et al, 1991[9]	Bone exposure[a]	9.2 (0.57-146)	0.70 (0.53-0.92)
Newman et al, 1991[9]	Ulcer area >2 cm^2[a]	7.2 (1.1-49)	0.48 (0.31-0.76)
Newman et al, 1991[9]	Ulcer inflammation (erythema, swelling, purulence)[a]	1.5 (0.51-4.7)	0.84 (0.56-1.3)
	Clinical Gestalt		
Newman et al, 1991[9]	Clinical judgment[a]	9.2 (0.57-147)	0.70 (0.53-0.92)
Vesco et al, 1999[40]	Wagner grade >2[a]	13 (0.82-203)	0.48 (0.27-0.86)
Enderle et al, 1999[24]	Wagner grade >2[a]	3.9 (0.96-16)	0.04 (0-0.70)
Summary LR[b]		5.5 (1.8-17)	0.54 (0.30-0.97)
	Laboratory Findings		
Kaleta et al, 2001[36]	ESR ≥70 mm/h	19 (1.3-290)	0.13 (0.04-0.42)
Newman et al, 1991[9]	ESR >70 mm/h[a]	6.4 (0.39-105)	0.74 (0.54-1.0)
Summary LR[c]		11 (1.6-79)	0.34 (0.06-1.9)
Oyen et al, 1992[38]	Swab culture[d]	1 (0.65-1.5)	1 (0.08-13)

Lipsky BA, Berendt AR, Osteomyelitis, *Am Coll Phys Medicine* 2010


Symposium zum Diabetischen
27. Mai 2015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27. Nov. 2015

Courtesy: E. Senneville, MD

Culture of Percutaneous Bone Biopsy Specimens for Diagnosis of Diabetic Foot Osteomyelitis: Concordance with Ulcer Swab Cultures

Eric Senneville,[1] Hugues Melliez,[1] Eric Beltrand,[2] Laurence Legout,[1] Michel Valette,[1] Marie Cazaubiel,[1] Muriel Cordonnier,[1] Michèle Caillaux,[1] Yazdan Yazdanpanah,[1] and Yves Mouton[1]

[1]Diabetic Foot Clinic and [2]Department of Orthopedic Surgery, Dron Hospital, Tourcoing, France

Table 3. Proportion of pathogens isolated from cultures of bone biopsy and/or swab samples obtained from 69 patients with diabetes with suspected foot osteomyelitis.

	No. of instances in which culture yielded the specified pathogen				
Pathogen	Total	From bone biopsy sample only	From swab sample only	From both bone biopsy and swab samples	Concordance,[a] %
Staphylococcus aureus	49	13	15	21	42.8
CNS	35	30	4	1	2.8
Streptococci[b]	31	11	12	8	25.8
Enterococci	15	9	5	1	6.67
Corynebacteria	10	2	8	0	0
Gram-negative bacilli	42	12	18	12	28.5
Anaerobes	9	6	3	0	0
Total	191	79	65	43	22.5

Needle Puncture and Transcutaneous Bone Biopsy Cultures Are Inconsistent in Patients with Diabetes and Suspected Osteomyelitis of the Foot

Eric Senneville,[1] Hélène Morant,[4] Dominique Descamps,[4] Sophie Dekeyser,[4] Eric Beltrand,[2] Bruno Singer,[5] Michèle Caillaux,[3] Arnaud Boulogne,[6] Laurence Legout,[1] Xavier Lemaire,[1] Christine Lemaire,[6] and Yazdan Yazdanpanah[1]

[1]Diabetic Foot Clinic, [2]Department of Orthopedic Surgery, and [3]Laboratory of Microbiology, Gustave Dron Hospital, Tourcoing, and [4]Laboratory of Microbiology, [5]Department of Radiology, and [6]Diabetic Foot Clinic, General Hospital, Béthune, France

Table 2. Proportion of microorganisms isolated from bone biopsy specimens and needle puncture specimens obtained concomitantly from 31 patients with diabetes and suspected osteomyelitis of the foot.

Microorganism isolated	No. of cultures				Correlation,[a] %
	Total	Bone biopsy specimen only	Needle puncture specimen only	Bone biopsy and needle puncture specimens	
Staphylococcus aureus	15	7	1	7	46.7
Coagulase-negative staphylococci	11	3	8	0	0
Other gram-positive cocci[b]	8	3	4	1	14.3
Gram-negative bacilli	25	10	9	6	24.0
Anaerobes[c]	8	3	3	2	25.0
Total	67	26	25	16	23.9

In Which Situations Is Diagnostic Bone Biopsy Most Recommended?

- **Failure to *respond* to empiric antibiotic therapy**
- **Plan to insert *metalware* in bone at affected site**
- Desire to use antibiotic *agents* that may be especially effective for osteomyelitis but have a high potential for selecting resistant bacteria


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27. Nov. 2015

Skeletal Radiol. 2000 Jul;29(7):378-86.

Chronic post-traumatic osteomyelitis of the lower extremity: comparison of magnetic resonance imaging and combined bone scintigraphy/immunoscintigraphy with radiolabelled monoclonal antigranulocyte antibodies.

Kaim A, Ledermann HP, Bongartz G, Messmer P, Müller-Brand J, Steinbrich W.

For MRI,

Sensitivity of 100%,

Specificity of 60%,

Accuracy of 79%,

PPV of 69%,

NPV of 100%.

Radiology. 1997 Jun;203(3):849-55.
Osteomyelitis of the diabetic foot: MR imaging-pathologic correlation.

Sensitivity 90%; specificity 71%.

CONCLUSION

Marrow edema cannot be reliably distinguished from

osteomyelitis with MR imaging.

Radiol med (2009) 114:121–132
DOI 10.1007/s11547-008-0337-7

MUSCULOSKELETAL RADIOLOGY
RADIOLOGIA MUSCOLO-SCHELETRICA

Role of magnetic resonance imaging in the evaluation of diabetic foot with suspected osteomyelitis

Ruolo della risonanza magnetica nello studio del piede diabetico con sospetta osteomielite

U. Rozzanigo[1] • A. Tagliani[1] • E. Vittorini[1] • R. Pacchioni[2] • L. Renzi Brivio[3] • R. Caudana[1]

Fig. 2a-c Reactive bone marrow oedema of the talus and calcaneus due to neuropathy in a diabetic patient with mal perforans and normal radiographic findings [false-positive magnetic resonance imaging (MRI) diagnosis of osteomyelitis]. a The coronal T1-weighted turbo spin-echo (TSE) image with fat suppression after administration of paramagnetic contrast material reveals diffuse changes in signal intensity of bone marrow and soft tissues, as well as moderate contrast enhancement in the talus and in the subtalar portion of the calcaneus, wrongly interpreted as osteomyelitis associated with cellulitis. b In


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27. Nov. 2015

Diabetologia (2008) 51:962–967
DOI 10.1007/s00125-008-0976-1

ARTICLE

Primarily non-surgical management of osteomyelitis of the foot in diabetes

F. L. Game · W. J. Jeffcoate

Table 1 Twelve month outcomes in patients managed with antibiotics alone, compared with those managed with antibiotics plus minor amputation at initial presentation

Outcome	Antibiotics alone (n=113)	Antibiotics with minor amputation (n=28)
No recurrence of active disease	66 (58.4)	10 (35.7)
Recurrence or reactivation	35 (31.0)	17 (60.7)
Died	10 (8.8)	1 (3.6)
Lost to follow-up	2 (1.8)	0

Diabetes Care Volume 37, March 2014

Antibiotics Versus Conservative Surgery for Treating Diabetic Foot Osteomyelitis: A Randomized Comparative Trial

José Luis Lázaro-Martínez,[1] Javier Aragón-Sánchez,[2] and Esther García-Morales[1]

RESULTS

Eighteen patients (75%) achieved primary healing in the AG, and 19 (86.3%) in the SG (P = 0.33). The median time to healing was 7 weeks (quartile [Q] 1 to Q5, Q3–Q8) in the AG and 6 weeks (Q1–Q3, Q3–Q9) in the SG (P = 0.72). The conditions of four patients from the AG worsened (16.6%), and they underwent surgery. Three patients from the SG required reoperation. No difference was found between the two groups regarding minor amputations (P = 0.336).

The Journal of Foot & Ankle Surgery 50 (2011) 171–175

Contents lists available at ScienceDirect

The Journal of Foot & Ankle Surgery

journal homepage: www.jfas.org

The Effect of Residual Osteomyelitis at the Resection Margin in Patients with Surgically Treated Diabetic Foot Infection

Todd J. Kowalski, MD [1], Miki Matsuda, DPM [2], Matthew D. Sorenson, DPM [2], Jacob D. Gundrum, MS [3], William A. Agger, MD [1]

[1] *Infectious Disease Physician, Section of Infectious Disease, Gundersen Lutheran Health System, La Crosse, WI*
[2] *Podiatrist, Department of Medical Education, Gundersen Lutheran Medical Foundation, La Crosse, WI*
[3] *Biostatistician, Department of Medical Research, Gundersen Lutheran Medical Foundation, La Crosse, WI*

The Journal of Foot & Ankle Surgery 51 (2012) 749–752

Contents lists available at ScienceDirect

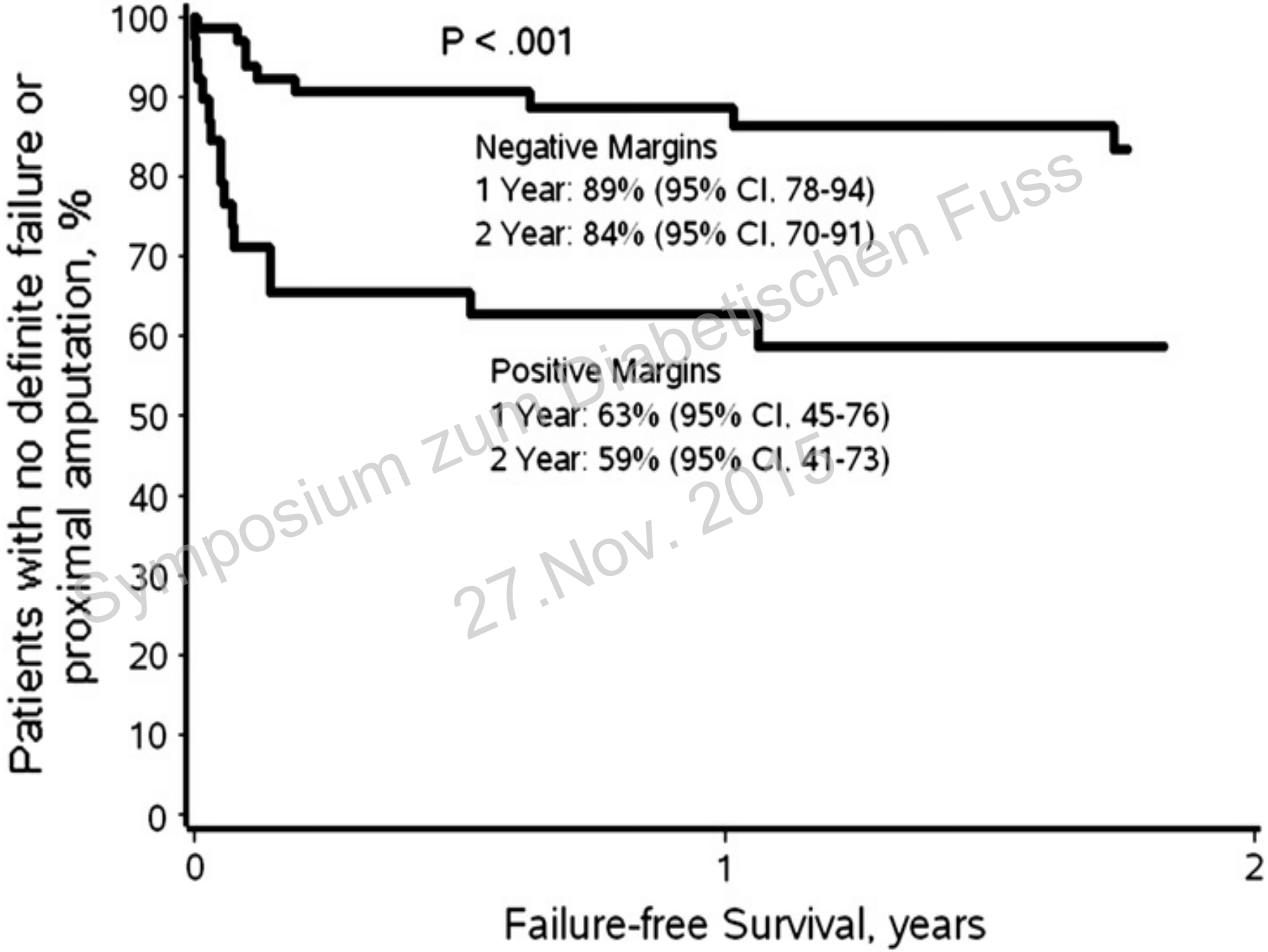
The Journal of Foot & Ankle Surgery

journal homepage: www.jfas.org

Rate of Residual Osteomyelitis after Partial Foot Amputation in Diabetic Patients: A Standardized Method for Evaluating Bone Margins with Intraoperative Culture

Said Atway, DPM [1], Vincent S. Nerone, DPM [2], Kevin D. Springer, DPM [2], Darren M. Woodruff, DPM [2]

[1] *Attending Podiatric Physician, The Ohio State University Medical Center, Columbus, OH*
[2] *Resident Podiatric Physician, The Ohio State University Medical Center, Columbus, OH*

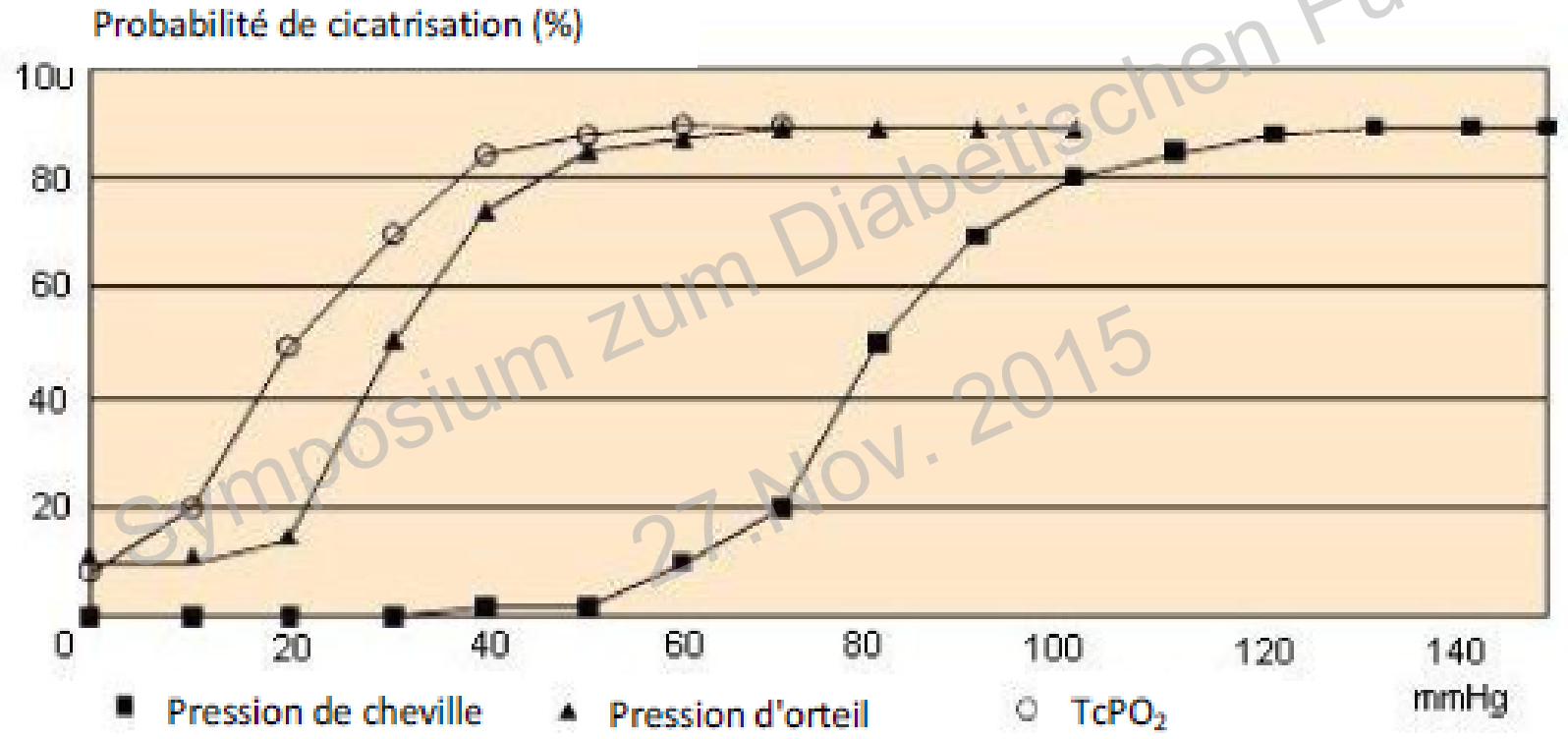



Symposium zum Diabetischen Fuss

1. Diabetic foot osteomyelitis is an epiphenomena

2. All osteotis does not heal withput reversing its cause

Arterial insufficiency



Probabilité de cicatriser en fonction des résultats des explorations non invasives

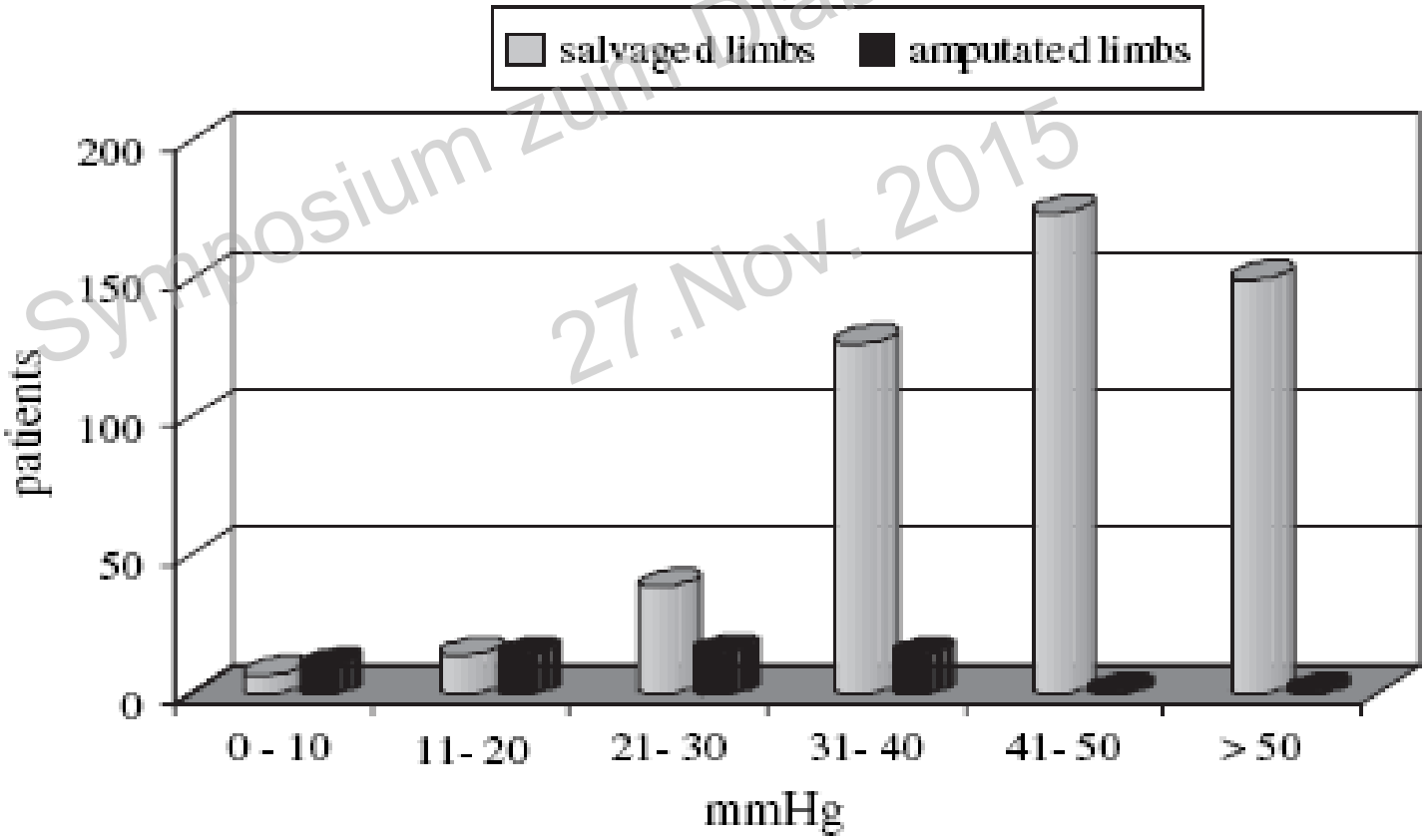
Recommandation IWGDF 2013

Eur J Vasc Endovasc Surg 33, 731–736 (2007)
doi:10.1016/j.ejvs.2006.12.027, available online at http://www.sciencedirect.com on ScienceDirect

Predictive Values of Transcutaneous Oxygen Tension for Above-the-ankle Amputation in Diabetic Patients with Critical Limb Ischemia

E. Faglia,[1*] G. Clerici,[1] M. Caminiti,[1] A. Quarantiello,[1] V. Curci[1] and A. Morabito[2]

[1]*Diabetology Center-Diabetic Foot Center, IRCCS Multimedica, Sesto San Giovanni, Milano, Italy, and*



Arteriobrachial index

Valors:

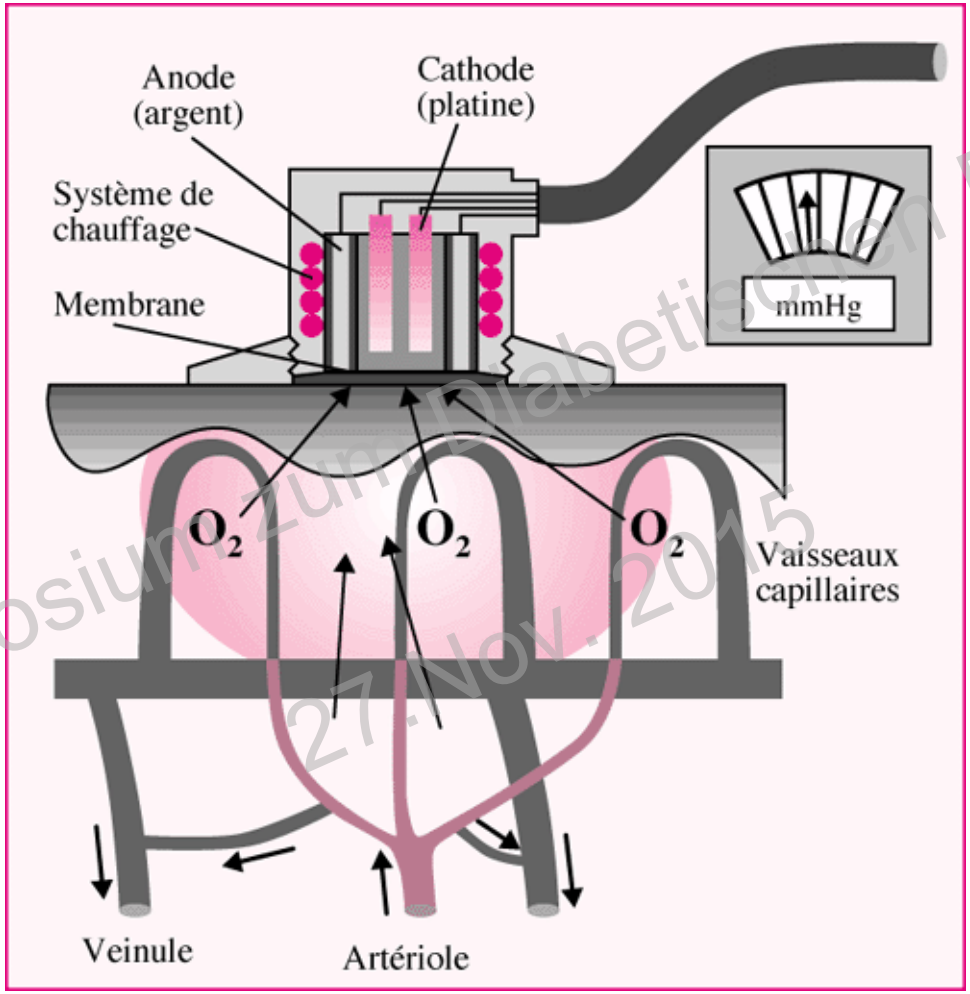
- normal : 1.0-1.3
- 0.9-0.99 → limitated
- 0.4-0.9 → probable obstruction
- <0.4 → obstruction and critical ischemia probable

– **<u>No evidence for predicting the amputation level *per se*</u>**

Rooke, T. W. et al. "2011 Accf/Aha Focused Update of the Guideline for the Management of Patients with Peripheral Artery Disease (Updating the 2005 Guideline): A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Catheter Cardiovasc Interv* 79, no. 4 (2012): 501-31.

Wyss, C. R., R. M. Harrington, E. M. Burgess and F. A. Matsen, 3rd. "Transcutaneous Oxygen Tension as a Predictor of Success after an Amputation." *J Bone Joint Surg Am* 70, no. 2 (1988): 203-7.

TcPO2



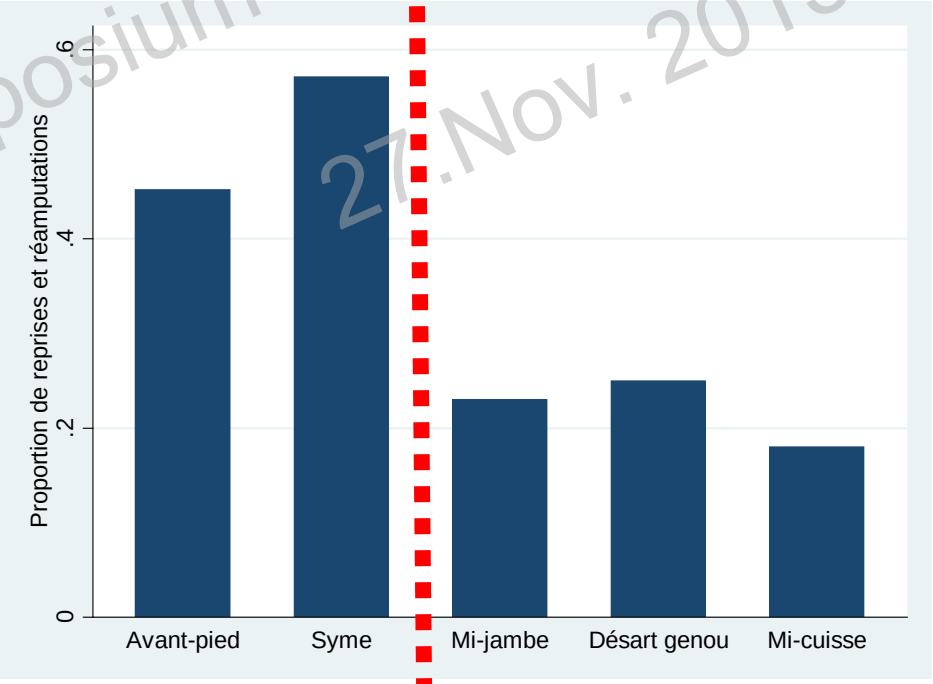
Utilité clinique de la mesure transcutanée de la pression partielle d'oxygène, Sang Thrombose Vaisseaux. Volume 10, Numéro 9, 581-5, Novembre 1998, Mini-revues (http://www.jle.com/e-docs/00/03/D0/AA/article.phtml)

Byrne, P., J. L. Provan, F. M. Ameli and D. P. Jones. "The Use of Transcutaneous Oxygen Tension Measurements in the Diagnosis of Peripheral Vascular Insufficiency." *Ann Surg* 200, no. 2 (1984): 159-65.

Amputations at HUG 2004-2014

Re-amputations according to the prior level

	Forefoot	Syme	Leg	Knee	Calve
% (n)	13.9 (42)	2.1 (7)	50.8 (154)	9.24 (28)	23.8 (72)
Hard outcomes % (n)	45.2 (19)	57.1 (4)	22.7 (36)	25.0 (7)	18.1 (13)



- Amputations **below** the ankle:
  - Stratified between TcPO2 <**35 vs. ≥ 35mmHg**

tcPO2	Revision / Re-amputation		
	No	Yes	
>35	15	12	PPV = 56%
0-34	11	11	NPV = 50%
	Sensibility= 57.7%	Specificity = 47.8%	Accuracy = 53%

Below ankle amputations: ROC = 0.52

IDSA LECTURE

Counterpoint: Hyperbaric Oxygen for Diabetic Foot Wounds Is Not Effective

A. R. Berendt

Bone Infection Unit, Nuffield Orthopaedic Centre NHS Trust, Oxford, United Kingdom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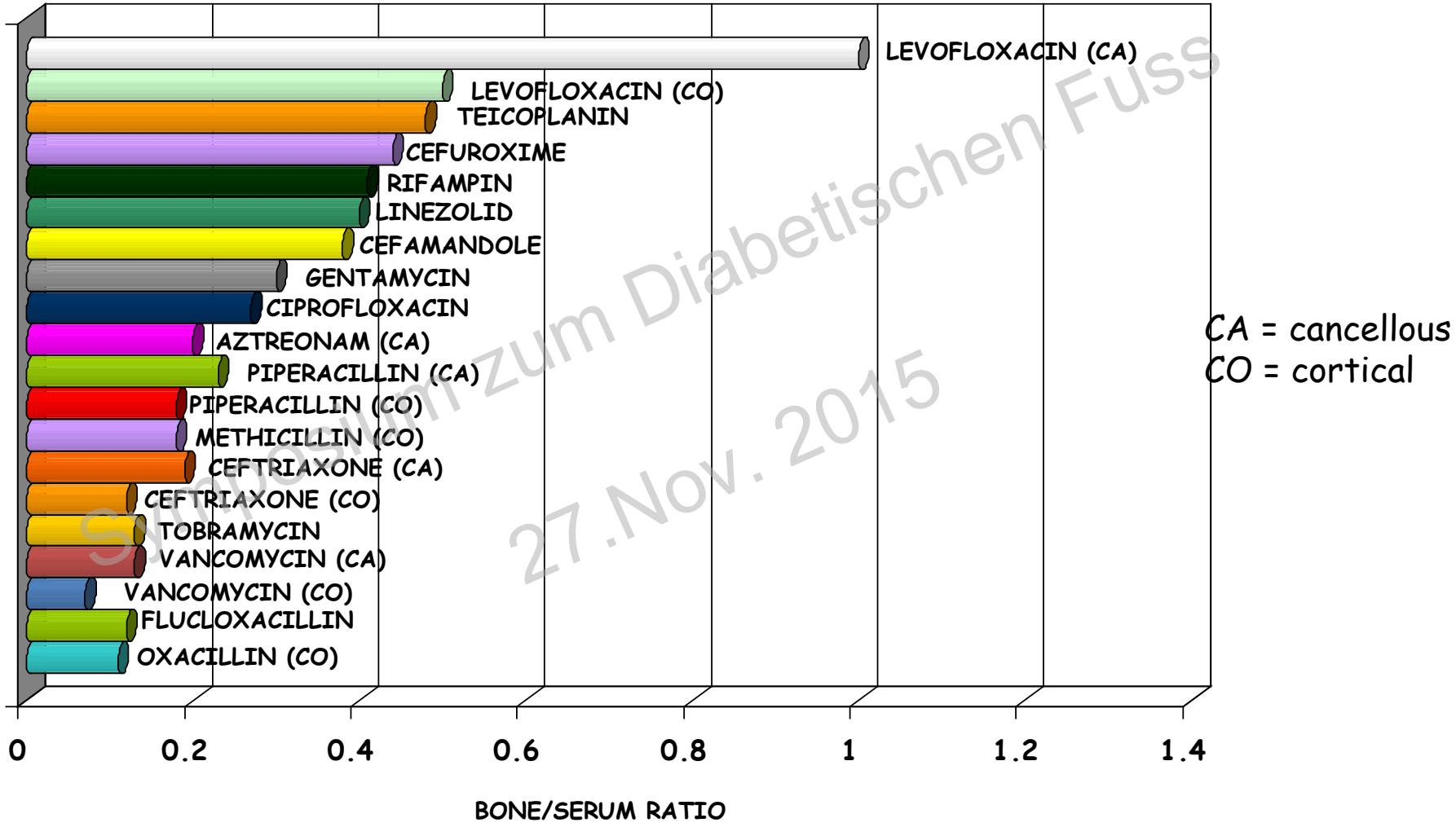
ANTIBIOTICS AND BONE PENETRATION

Landersdorfer CB et al. *Clin Pharmacokinet* 2009;48:89-124



- **Linezolid,**
  - **expensive**
  - **limited clinical data with RIF**
- **Streptogramines**
- **D**
  -
- **T**
  -
  -
- **F**
- **M**
- **Newer quinolones,**
  - **better activity against *Staphylococci* sp than CIPRO**
  - **studied above all in experimental m**

Cliniquement pas supérieur aux vieux antibiotiques !

Etudes de non-infériorité.

Pas d'étude de supériorité in vivo !

IV antibiotics ?

THE COCHRANE COLLABORATION®

Analysis 1.2. Comparison 1 Oral antibiotic versus parenteral antibiotic (AB), Outcome 2 Remission at least 12 months after the end of treatment.

Review: Antibiotics for treating chronic osteomyelitis in adults

Comparison: 1 Oral antibiotic versus parenteral antibiotic (AB)

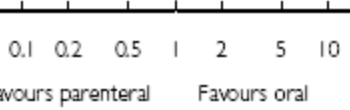
Outcome: 2 Remission at least 12 months after the end of treatment

Study or subgroup	Oral AB n/N	Parenteral AB n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
Gentry 1990	24/31	22/28		48.5 %	0.99 [0.75, 1.29]
Gentry 1991	14/19	12/14		29.0 %	0.86 [0.61, 1.21]
Mader 1990	11/14	10/12		22.6 %	0.94 [0.65, 1.37]
Total (95% CI)	**64**	**54**		**100.0 %**	**0.94 [0.78, 1.13]**

Total events: 49 (Oral AB), 44 (Parenteral AB)

Heterogeneity: $Chi^2 = 0.38$, df = 2 (P = 0.83); $I^2 = 0.0\%$

Test for overall effect: Z = 0.66 (P = 0.51)



Conterno et al. Cochrane 2008

Table 8. Suggested empirical antibiotic regimens, based on clinical severity, for diabetic foot infections.

Route and agent(s)	Mild	Moderate	Severe
Advised route	Oral for most	Oral or parenteral, based on clinical situation and agent(s) selected	Intravenous, at least initially
Dicloxacillin	Yes	…	…
Clindamycin	Yes	…	…
Cephalexin	Yes	…	…
Trimethoprim-sulfamethoxazole	Yes	Yes	…
Amoxicillin/clavulanate	Yes	Yes	…
Levofloxacin	Yes	Yes	…
Cefoxitin	…	Yes	…
Ceftriaxone	…	Yes	…
Ampicillin/sulbactam	…	Yes	…
Linezolid[a] (with or without aztreonam)	…	Yes	…
Daptomycin[a] (with or without aztreonam)	…	Yes	…
Ertapenem	…	Yes	…
Cefuroxime with or without metronidazole	…	Yes	…
Ticarcillin/clavulanate	…	Yes	…
Piperacillin/tazobactam	…	Yes	Yes
Levofloxacin or ciprofloxacin with clindamycin	…	Yes	Yes
Imipenem-cilastatin	…	…	Yes
Vancomycin[a] and ceftazidime (with or without metronidazole)	…	…	Yes

Choice of antibiotic agents

Cheap, good oral bioavailability, good bone penetration, less side effects, oral

- Clindamycin 3 x 600 mg p.o.
- Co-trimoxazol 2-3 x 960 mg (Bactrim forte)
- Augmentin 3 x 625-1000 mg
- **In reserve:** Ciprofloxacin 2 x 500-750 mg


Symposium zum Diabetischen Fuss
Nov. 2015

Duration of antibiotics ?

Six-Week Versus Twelve-Week Antibiotic Therapy for Nonsurgically Treated Diabetic Foot Osteomyelitis: A Multicenter Open-Label Controlled Randomized Study

Alina Tone,[1] Sophie Nguyen,[1] Fabrice Devemy,[2] Hélène Topolinski,[3] Michel Valette,[1] Marie Cazaubiel,[4] Armelle Fayard,[5] Éric Beltrand,[6] Christine Lemaire,[3] and Éric Senneville[1]

Diabetes Care 2015;38:302–307 | DOI: 10.2337/dc14-1514

Table 4—Clinical outcome of 40 diabetic patients with osteomyelitis of the foot treated nonsurgically according to the duration of antibiotic therapy

Patient outcome	6 weeks $n = 20$	12 weeks $n = 20$	P
Overall remission	12 (60)	14 (70)	0.50
Complete healing[a]	18 (90)	16 (80)	0.38
Time to complete healing (weeks ± SD)	13.1 ± 12.2	16.8 ± 17.4	0.44
Overall failure	8 (40)	6 (30)	0.50
Noncomplete healing	2 (10)	4 (20)	0.37
Relapsing osteomyelitis	2 (15)	3 (15)	1
Worsening radiological bone abnormalities	6 (30)	4 (20)	0.46
Bone resection	2 (10)	2 (10)	1
Spread of osteomyelitis to contiguous sites	4 (20)	2 (10)	0.37
Major amputation	2 (10)	2 (10)	1

Table 3—Antibiotic-related gastrointestinal adverse events reported in 40 diabetic patients with DFO treated nonsurgically according to the duration of antibiotic therapy

Antibiotic-related adverse events	6 weeks $n = 20$	12 weeks $n = 20$
Nausea	1 (5)	2 (10)
Vomiting	1 (5)	2 (10)
Diarrhea	0	2 (10)
Hepatic cytolysis/cholestasis	1 (5)	3 (15)
Total	3 (15)	9 (45)[a]

Data are number of patients (%). [a]$P = 0.04$.

IDSA DFI Guidelines: Revised (2012)

IDSA GUIDELINES

2012 Infectious Diseases Society of America Clinical Practice Guideline for the Diagnosis and Treatment of Diabetic Foot Infections[a]

Benjamin A. Lipsky,[1] Anthony R. Berendt,[2] Paul B. Cornia,[3] James C. Pile,[4] Edgar J. G. Peters,[5] David G. Armstrong,[6] H. Gunner Deery,[7] John M. Embil,[8] Warren S. Joseph,[9] Adolf W. Karchmer,[10] Michael S. Pinzur,[11] and Eric Senneville[12]

[1]Department of Medicine, University of Washington, Veterans Affairs Puget Sound Health Care System, Seattle; [2]Bone Infection Unit, Nuffield Orthopaedic Centre, Oxford University Hospitals NHS Trust, Oxford; [3]Department of Medicine, University of Washington, Veteran Affairs Puget Sound Health Care System, Seattle; [4]Divisions of Hospital Medicine and Infectious Diseases, MetroHealth Medical Center, Cleveland, Ohio; [5]Department of Internal Medicine, VU University Medical Center, Amsterdam, The Netherlands; [6]Southern Arizona Limb Salvage Alliance, Department of Surgery, University of Arizona, Tucson; [7]Northern Michigan Infectious Diseases, Petoskey; [8]Department of Medicine, University of Manitoba, Winnipeg, Canada; [9]Division of Podiatric Surgery, Department of Surgery, Roxborough Memorial Hospital, Philadelphia, Pennsylvania; [10]Department of Medicine, Division of Infectious Diseases, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts; [11]Department of Orthopaedic Surgery and Rehabilitation, Loyola University Medical Center, Maywood, Illinois; and [12]Department of Infectious Diseases, Dron Hospital, Tourcoing, France

Clinical Infectious Diseases 2012;54(12):132–173
Published by Oxford University Press on behalf of the Infectious Diseases Society of America 2012.
DOI: 10.1093/cid/cis346

Table 11. Suggested Route, Setting, and Duration of Antibiotic Therapy, by Clinical Syndrome

Site of Infection, by Severity or Extent	Route of Administration	Setting	Duration of Therapy
Soft-tissue only			
Mild	Topical or oral	Outpatient	1–2 wk; may extend up to 4 wk if slow to resolve
Moderate	Oral (or initial parenteral)	Outpatient/ inpatient	1–3 wk
Severe	Initial parenteral, switch to oral when possible	Inpatient, then outpatient	2–4 wk
Bone or joint			
No residual infected tissue (eg, postamputation)	Parenteral or oral	…	2–5 d
Residual infected soft tissue (but not bone)	Parenteral or oral	…	1–3 wk
Residual infected (but viable) bone	Initial parenteral, then consider oral switch	…	4–6 wk

Few literature concernant « recurrence »

ISPUB.com / IJMB/10/2/14187

The Internet Journal of Microbiology Volume 10 Number 2

Original Article

Comparative Study of Community and Hospital Acquired Infections in Diabetic Foot

S Pai, H Vijaykumar, M Sreevathsa, D Parag

55 diabetic foot infections, surgery 84%

2 microbiological assessments:

On admission, and 1 week later.

Table 1. First culture showing community acquired infections

Organisms isolated	Frequency (%) (n=55)
Klebsiella	14 (25.5)
E-coli	11 (20)
Enterococci	9 (16.4)
Proteus	4 (7.3)
Staphylococcus aureus	4 (7.3)
Enterobacter	3 (5.5)
Pseudomonas	1 (1.8)
Gram negative cocci	1 (1.8)
Non-fermenting gram neg bacilli	1 (1.8)
No growth	7 (12.7)

Table 3: Second culture showing hospital acquired infections.

Organism isolated	Frequency (%)
Pseudomonas	28 (50.9)
E. coli	8 (14.5)
Proteus	7 (12.7)
Gram positive cocci in pairs	4 (7.3)
Staphylococcus aureus	4 (7.3)
Non-fermenting gram negative bacilli	1 (1.8)
No growth	3 (5.5)


Symposium zum Diabetischen Fuss
2015

Retrospective study - results

- Among **517 episodes** of DFI,
- Recurrence occurred in **244 (47%)**
- After a median of 2.4 yrs (range 60 days-5 yrs).

- Among these 244 recurrences,
- **157 (64%)** had isolates from their wounds that were not identified
- (**among the three main pathogens**) during the preceding episode.

DIABETICMedicine

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Article: Clinical Practice

Does osteomyelitis in the feet of patients with diabetes really recur after surgical treatment? Natural history of a surgical series

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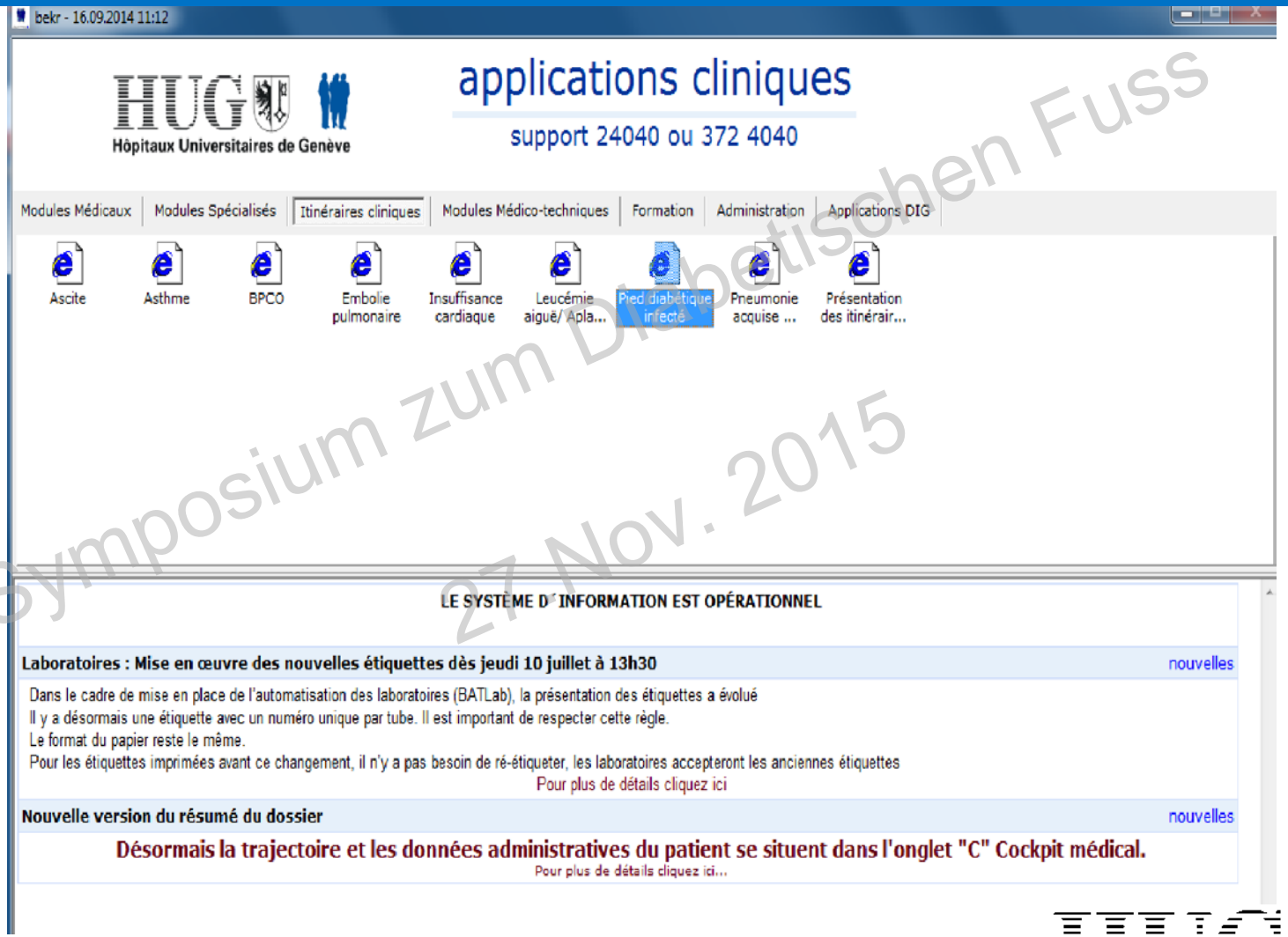
64 patients: median duration of follow-up was 101.8 weeks

- Recurrence 4.6%
- Reulceration 43.0%
- New osteomyelitis 16.9%

L'Itinéraire clinique du pied diabétique infecté



Etude sur l'intervention vasculaire sur 5 ans

Echantillon sur 243 hospitalisations

- Nombre bilan angio : 144 (60%)
- Nombre CT angio : 59 (24%)
- Nombre colloque vasculaire : 43 (18%)
- Nombre interventions vasculaires: 36 (15%)

Délai admission-demande bilan angio : médiane 0 jours (fourchette 0-92 jours)
Délai demande-bilan angio : médiane 0 jours (fourchette 0-29 jours)

Délai bilan angio-CT : médiane 5 jours (fourchette 0-38 jours)
Délai CT-colloque : médiane 5 jours (fourchette -1-39 jours)
Délai colloque-intervention : médiane 7 jours (fourchette 1-25 jours)

Délai admission-intervention : médiane 16 jours (fourchette 4-24 jours)

Prix séjour globaux et durées d'hospitalisation aiguë

2013	Nombres hospitalisations	Médian prix sejour par cas	Durée d'hospitalisation
Tous les patients	**200**	**20'206 CHF (1'407-300'269 CHF)**	**17 jours (1-190 jours)**
• Sans Caisson	172	18'475 CHF (1'407-178'322 CHF)	15 jours (1-138 jours)
• Avec Caisson	38	29'106 CHF (6'678-300'269 CHF)	36 jours (2-190 jours)
Ortho	68	28'151 CHF (5'145-132'731 CHF)	26 jours (2-118 jours)
Chir cardiovascul.	12	23'384 CHF (15'393-300'269 CHF)	16 jours (5-111 jours)
Médecine interne	77	14'553 CHF (2'636-178'322 CHF)	13 jours (1-100 jours)
• Angiologie	8	13'892 CHF (2'636-23'027 CHF)	5 jours (1-63 jours)
Dermatologie	7	76'041 CHF (31'815-160'968 CHF)	79 jours (35-130 jours)

Several period prevalence studies

Median number of surgical interventions : 1

Median duration of antibiotics : 14 days
Median duration parenteral therapy: 2 days

Broad-spectrum antibiotic use: 92 episodes of 336 (27%)

2012 Infectious Diseases Society of America Clinical Practice Guideline for the Diagnosis and Treatment of Diabetic Foot Infections[a]

Benjamin A. Lipsky,[1] Anthony R. Berendt,[2] Paul B. Cornia,[3] James C. Pile,[4] Edgar J. G. Peters,[5] David G. Armstrong,[6] H. Gunner Deery,[7] John M. Embil,[8] Warren S. Joseph,[9] Adolf W. Karchmer,[10] Michael S. Pinzur,[11] and Eric Senneville[12]

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Algorithme IC initial pied diabétique infecté 1/4

Algorithme de prise en charge initiale d'un patient diabétique au pied infecté

1 - Evaluation de l'importance de l'infection du pied

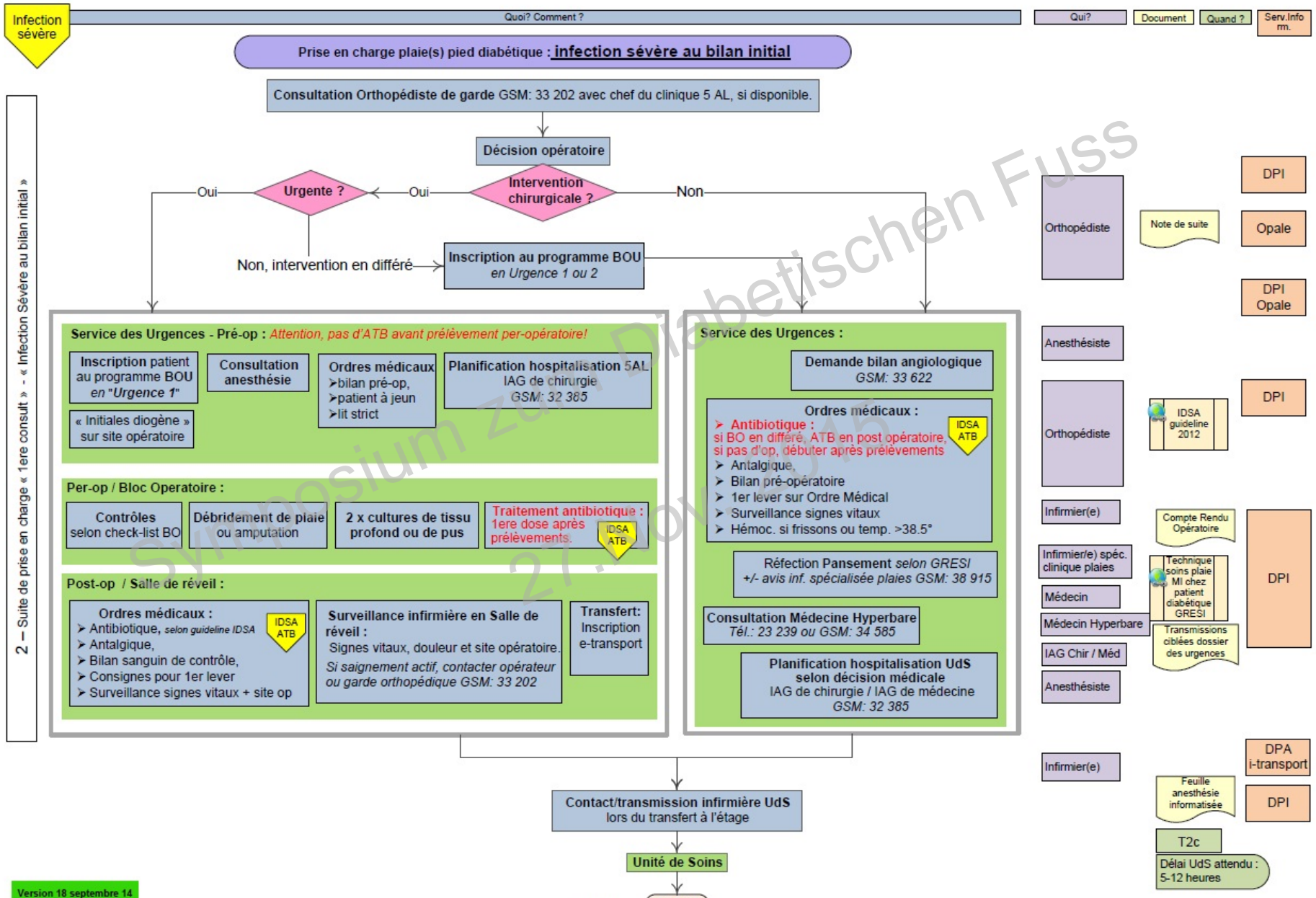
Etape N°	Quoi? Comment ? Où?	Qui?	Quand ?	Document	Serv.Inform.
	Patient diabétique ayant une plaie et/ou une inflammation au niveau du pied			IDSA guideline 2012	
	Patient venant de lui-même ou adressé par méd. traitant (SU / spec-med / 5AL) ; Patient hospitalisé aux HUG (CR / 3C / Loex / BS / Jolimont / Bellerive)	Adressage : Méd. HUG, Méd. Traitant, Patient	T0		DPI DPA
	Prise en charge initiale : **Anamnèse médicale** ; **Anamnèse infirmière**			Transmissions ciblées	DPI
	Examen clinique À la recherche de signes cliniques* et d'éléments diagnostiques : • Lésion du pied • Rougeur du pied *(pied CHARCOT décompensé▼)* • Nécrose sèche / humide ; **Signes vitaux :**TA, Pouls, Fréquence respiratoire, Temp. **Prise de sang** selon prescription	Médecin UdS/Poli C ; Infirmier(e) UdS/Poli C ; Technicien Radio		Notes de suite/ Note d'admission	DPA, DPI, Xplore
	Radiographie standard du pied F+P *à la recherche d'une ostéomyélite* ; Evaluation des **« Risques du pied diabétique »** *Echelle clinique dans DPI* ; **Bilan sanguin,** y inclus : • FSC avec répartition, Créatinine, Glycémie, HB glyquée • Hémocultures si frissons ou temp >38.5°				DPI
	Présence d'infection ? •Signes cliniques* •Signe radiologique d'atteinte osseuse				
	Non / Oui				
Pas d'infection détectée	**Pas d'infection détectée** • ≤1 signe clinique* en lien avec le diagnostic • 0 signe radiologique d'atteinte des structures sous la peau *(abcès profond, lymphangite, fasciite, ostéo-arthrite)*				
Infection légère ou modérée	**Infection légère ou modérée:** • 2 signes cliniques* **+/-** • 1 signe radiologique d'atteinte des structures sous la peau *(abcès profond, lymphangite, fasciite, ostéo-arthrite)*				
	Infection sévère: • 2 signes systémiques** *(nécrose humide, érysipèle en évolution, gangrène, abcès avec décharge purulente)*	Médecin UdS/poli	T1		
			Evaluation effectuée dans les 3 à 6h.		
	Si patient ambul. ou autre établissement HUG ⚠ ad transfert aux SU				Infection sévère

*** Signes cliniques :**
- Œdème / Induration
- Erythème >0.5 cm
- Sensibilité / Douleur
- Chaleur
- Ecoulement purulent

**** Signes systémiques :**
- Température >38°
- Fréquence respiratoire > 20/'
- Fréquence cardiaque > 90/'
- Globules blancs >12 ou <4 g/l
- Neutrophiles non segmentés >10%

▼ Pied de Charcot :
- Effondrement voute plantaire
- Dislocation articulaire
- Ostéolyse
- Lymphoedème

Algorithme IC initial pied diabétique infecté 4/4



Merci beaucoup !!!