Actualités sur la durée de l'antibiothérapie au cours des IOA de l'adulte

Lyon, le 04/03/2015

F. Lucht
CHU et UJM Saint Etienne

ASEPTIC SURGERY FORUM

International Expert Meeting on Good Surgical Practices and Technological Innovations to Prevent and Cure Infections

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Ce qui reste controversé est la durée optimale entre étapes, la voie et la durée d'administration des antibiotiques, l'efficacité des espaceurs et du ciment osseux avec antibiotiques, l'impact des blocs espaceurs ou des Prostalac sur le résultat fonctionnel, et la fixation optimale au moment de la réimplantation / *What is still controversial, however, it the optimal duration between stages, the optimal duration of route of antibiotic delivery, the efficacy of antibiotic spacers and bone cement, the role of spacer blocks or a Prostalac on the functional outcome, and the optimal fixation at the time of reimplantation.*

Duration of therapy

- Antibiotic therapy of osteomyelitis requires **a prolonged duration of treatment**.

- This may be in part due to the observation in experimental models that *S. aureus* can persist following digestion by **osteoblasts** [1,2].

- In addition, **antibiotic penetration** into bone may be unreliable in some patients, particularly in those with vasculopathy or prior extensive scarring from trauma.

- **The optimal duration of antibiotic therapy is not certain;** most experts favor continuing parenteral antimicrobial therapy at least until debrided bone has been covered by vascularized soft tissue, which is usually at least six weeks from the last debridement . Grade 2B [3].

- **Serial measurements of serum inflammatory markers (erythrocyte sedimentation rate and/or C-reactive protein)** can be useful [4].

1. Norden CW. Lessons learned from animal models of osteomyelitis. Rev Infect Dis 1988; 10:103.
2. Lew DP, Waldvogel FA. Osteomyelitis. N Engl J Med 1997; 336:999.
3. Guglielmo BJ, Luber AD, Paletta D Jr, Jacobs RA. Ceftriaxone therapy for staphylococcal osteomyelitis: a review. Clin Infect Dis 2000; 30:205.
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Clinical Infectious Diseases Advance Access published December 6, 2012

IDSA GUIDELINES

Diagnosis and Management of Prosthetic Joint Infection: Clinical Practice Guidelines by the Infectious Diseases Society of America[a]

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These guidelines are intended for use by infectious disease specialists, orthopedists, and other healthcare professionals who care for patients with prosthetic joint infection (PJI). They include evidence-based and opinion-based recommendations for the diagnosis and management of patients with PJI treated with debridement and retention of the prosthesis, resection arthroplasty with or without subsequent staged reimplantation, 1-stage reimplantation, and amputation.

Keywords. prosthetic joint infection; PJI; surgical intervention; antimicrobial.

Staphylococcal PJI

- Two to 6 weeks of a pathogen-specific intravenous antimicrobial therapy in combination with rifampin 300–450 mg orally twice daily followed by rifampin plus a companion oral drug
- for a total of 3 months for a total hip arthroplasty (THA)infection
- 6 months for a total knee arthroplasty (TKA) infection (A-I).
- Total elbow, total shoulder, and total ankle infections may be managed with the same protocols as THA infections (C-III).

PJI Due to Other Organisms

- Four to 6 weeks of pathogen-specific intravenous or highly bioavailable oral antimicrobial therapy is recommended
- (A-II).

L'empirisme règne, raccourcir la durée aurait beaucoup d'avantages

- Toxicité
- Risques inhérents aux hospitalisations prolongées
- Coûts
- Compliance du malade ….et du docteur qui doivent être parfaites!
- La pression de sélection des antibiotiques sur les bactéries

Rice LB. *The Maxwell Finland Lecture : For the duration-rational antibiotic administration in the era of antimicrobial resistance and Clostridium difficile. Clin Infect Dis 2008;46: 491-6.*

2009

Recommandations de pratique clinique

Infections ostéo-articulaires sur matériel

(prothèse, implant, ostéosynthèse)

Texte court

Organisées par
la Société de Pathologie Infectieuse de Langue Française (SPILF)
avec la participation des sociétés savantes et organismes :

Collège des Universitaires de Maladies Infectieuses et Tropicales (CMIT)
Groupe de Pathologie Infectieuse Pédiatrique (GPIP)
Société Française d'Anesthésie et de Réanimation (SFAR)
Société Française de Chirurgie Orthopédique et Traumatologique (SOFCOT)
Société Française d'Hygiène Hospitalière (SFHH)
Société Française de Médecine Nucléaire (SFMN)
Société Française de Médecine Physique et de Réadaptation (SOFMER)
Société Française de Microbiologie (SFM)
Société Française de Radiologie (SFR-Rad)
Société Française de Rhumatologie (SFR-Rhu)

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Durée totale de traitement

- Il est recommandé d'administrer le traitement antibiotique pour une durée minimale de 6 semaines.
- Les durées usuelles rapportées dans la littérature sont de 6 à 12 semaines.
- La poursuite de l'antibiothérapie au-delà de 12 semaines doit être argumentée **(avis d'expert).**

Recommandations HAS 2014

Durée totale d'antibiothérapie

Recommandation 27

AE	Il est recommandé de traiter entre 6 semaines et 3 mois. Il n'est pas recommandé de prolonger le traitement au-delà de 3 mois.

2007

Recommandations pour la Pratique Clinique

Spondylodiscites infectieuses primitives, et secondaires à un geste intra-discal, sans mise en place de matériel

Organisées par
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avec la participation des organismes et sociétés savantes :

Collège des universitaires de maladies infectieuses et tropicales
Société française de rhumatologie
Société française de microbiologie
Société française de radiologie
Société française de neuro-chirurgie
Société française de médecine physique et réadaptation

Texte court

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6.4 Quelle doit être la durée du traitement antibiotique ou antifongique d'une spondylodiscite ?

La durée totale de traitement des spondylodiscites à micro-organisme pyogène n'est pas consensuelle, les durées moyennes rapportées allant de 63 ± 29 jours à 16,1 ± 4,8 semaines voire 4,5 mois. Si certains paramètres semblent influencer la durée totale du traitement : âge, signes neurologiques ou bactériémie, infection à *S. aureus*, il n'existe actuellement pas d'argument pour proposer une durée de traitement adaptée à l'évolution des paramètres de l'inflammation, ce d'autant que la normalisation de la CRP peut demander plus de 6 semaines. De même il n'existe aucun argument pour adapter la durée de traitement en fonction de l'imagerie, en particulier de l'IRM.

Le traitement est habituellement initié par voie intra-veineuse, dans plus de 90 % des cas. Même si la durée habituellement conseillée est de 4 à 6 semaines, le traitement pourrait être prescrit par voie orale si le micro-organisme en cause est sensible à des antibiotiques ayant une biodisponibilité orale satisfaisante et une bonne diffusion osseuse. Quelle que soit la durée du traitement parentéral initial, il n'existe actuellement aucune donnée dans la littérature validant l'intérêt d'un traitement par voie orale en relais d'une antibiothérapie parentérale de 6 à 8 semaines, qu'il s'agisse de spondylodiscites primitives ou de spondylodiscites secondaires à un geste intra-discal.

Dans les spondylodiscites fongiques à *Candida*, la durée de traitement recommandée varie de 2 à 6 semaines, ou de 6 à 10 semaines mais la plupart des cas rapportés dans la littérature ont été traités plus longtemps. Des recommandations récentes suggèrent de traiter une infection osseuse à *Candida* pendant 6 à 12 mois (72). Une durée de 6 mois au moins semble nécessaire. Dans les spondylodiscites à *Aspergillus*, une durée de 6 mois semble être la plus consensuelle (73).

Dans la spondylodiscite tuberculeuse, la durée de traitement des formes extra-pulmonaires devrait être identique à celle des formes pulmonaires, cependant, et bien qu'il n'y ait pas d'élément de preuve, la durée de traitement proposée est de 9 ou 12 mois pour les formes osseuses (74).

Au vu de ces données, la durée du traitement antibiotique des spondylodiscites à pyogènes n'est pas parfaitement définie. Le traitement devrait être initié par voie parentérale après réalisation des prélèvements à visée bactériologique. Ce traitement IV devrait être maintenu en cas de bactériémie, d'endocardite associée, de localisations profondes associées (abcès, méningite…), si le micro-organisme en cause est un streptocoque ou *S. aureus*. La durée du traitement IV ne devrait organisme en cause est sensible à des antibiotiques ayant une biodisponibilité orale satisfaisante, avec une bonne diffusion osseuse tels que les fluoroquinolones, l'acide fusidique, la rifampicine, le cotrimoxazole.

La durée totale optimale du traitement antibiotique n'est pas définie mais il ne semble pas exister de justification à prolonger le traitement au-delà de 6 semaines. Toutefois, une étude multicentrique est actuellement en cours, qui compare deux durées de traitement antibiotique, 6 *versus* 12 semaines.

Dans les spondylodiscites: 6 à 12 S

1. Akiyama T, Chikuda H, Yasunaga H, Horiguchi H, Fushimi K, Saita K. Incidence and risk factors for mortality of vertebral osteomyelitis: a retrospective analysis using the Japanese diagnosis procedure combination database. *BMJ Open* 2013; **25:** 3.
2. Kurtze SM, Lau E, Watson H, Schmier JK, Parvizi J. Economic burden of periprosthetic joint infection in the United States. *J Arthroplasty* 2008; **7:** 984–91.
3. Zimmerli W. Clinical practice. Vertebral osteomyelitis. *N Engl J Med* 2010**; 362:** 1022–29.
4. Roblot F, Besnier JM, Juhel L, et al. Optimal duration of antibiotic therapy in vertebral osteomyelitis. *Semin Arthritis Rheum* 2007; **36:** 269–77.

Les IOA à Candida (grade C)

- Il est recommandé d'utiliser de l'amphotéricine B par voie IV pendant au moins 15 jours **(grade C).**
- En cas de mauvaise tolérance ou d'insuffisance rénale, il est possible d'avoir recours à l'amphotéricine B sous forme liposomale. Il est possible d'effectuer une association à la 5-fluorocytosine en cas de souche fongique sensible et en l'absence de contre-indication **(avis d'expert)**.
- Au terme des 15 jours, il est recommandé d'effectuer un relais par du fluconazole par voie orale si la souche fongique y est sensible. En cas de résistance, l'alternative est le voriconazole par voie orale **(avis d'expert)**.
- Il est recommandé de maintenir la durée du traitement antifongique **entre 3 et 6 mois chez le patient immunocompétent (grade C).** En cas d'immunodépression sévère, il est recommandé de poursuivre une prophylaxie secondaire à la même posologie pendant toute la durée de l'immunodépression.

Les IOA à *Aspergillus* (grade C)

- Il est recommandé d'utiliser en première intention du voriconazole par voie orale ou IV.
- En cas de contre-indication, il est recommandé d'utiliser de l'amphotéricine B par voie parentérale.
- Il est recommandé de maintenir **la durée du traitement au moins de 6 mois chez le patient immunocompétent.**
- En cas d'immunodépression sévère, il est recommandé de poursuivre une prophylaxie secondaire à la même posologie pendant toute la durée de l'immunodépression.

Antibiotic treatment for 6 weeks versus 12 weeks in patients with pyogenic vertebral osteomyelitis: an open-label, non-inferiority, randomised, controlled trial

*Louis Bernard, Aurélien Dinh, Idir Ghout, David Simo, Valerie Zeller, Bertrand Issartel, Vincent Le Moing, Nadia Belmatoug, Philippe Lesprit, Jean-Pierre Bru, Audrey Therby, Damien Bouhour, Eric Dénes, Alexa Debard, Catherine Chirouze, Karine Fèvre, Michel Dupon, Philippe Aegerter, Denis Mulleman, on behalf of the Duration of Treatment for Spondylodiscitis (DTS) study group**

Summary

Background Duration of treatment for patients with vertebral osteomyelitis is mainly based on expert recommendation rather than evidence. We aimed to establish whether 6 weeks of antibiotic treatment is non-inferior to 12 weeks in patients with pyogenic vertebral osteomyelitis.

Methods In this open-label, non-inferiority, randomised controlled trial, we enrolled patients aged 18 years or older with microbiologically confirmed pyogenic vertebral osteomyelitis and typical radiological features from 71 medical care centres across France. Patients were randomly assigned to either 6 weeks or 12 weeks of antibiotic treatment (physician's choice in accordance with French guidelines) by a computer-generated randomisation list of permuted blocks, stratified by centre. The primary endpoint was the proportion of patients who were classified as cured at 1 year by a masked independent validation committee, analysed by intention to treat. Non-inferiority would be declared if the proportion of cured patients assigned to 6 weeks of treatment was not less than the proportion of cured patients assigned to 12 weeks of treatment, within statistical variability, by an absolute margin of 10%. This trial is registered with EudraCT, number 2006-000951-18, and Clinical Trials.gov, number NCT00764114.

Findings Between Nov 15, 2006, and March 15, 2011, 359 patients were randomly assigned, of whom six in the 6-week group and two in the 12-week group were excluded after randomisation. 176 patients assigned to the 6-week treatment regimen and 175 to the 12-week treatment regimen were analysed by intention to treat. 160 (90·9%) of 176 patients in the 6-week group and 159 (90·9%) of 175 of those in the 12-week group met the criteria for clinical cure. The difference between the groups (0·05%, 95% CI −6·2 to 6·3) showed the non-inferiority of the 6-week regimen when compared with the 12-week regimen. 50 patients in the 6-week group and 51 in the 12-week group had adverse events, the most common being death (14 [8%] in the 6-week group *vs* 12 [7%] in the 12-week group), antibiotic intolerance (12 [7%] *vs* 9 [5%]), cardiorespiratory failure (7 [4%] *vs* 12 [7%]), and neurological complications (7 [4%] *vs* 3 [2%]).

Interpretation 6 weeks of antibiotic treatment is not inferior to 12 weeks of antibiotic treatment with respect to the proportion of patients with pyogenic vertebral osteomyelitis cured at 1 year, which suggests that the standard antibiotic treatment duration for patients with this disease could be reduced to 6 weeks.

Funding French Ministry of Health.

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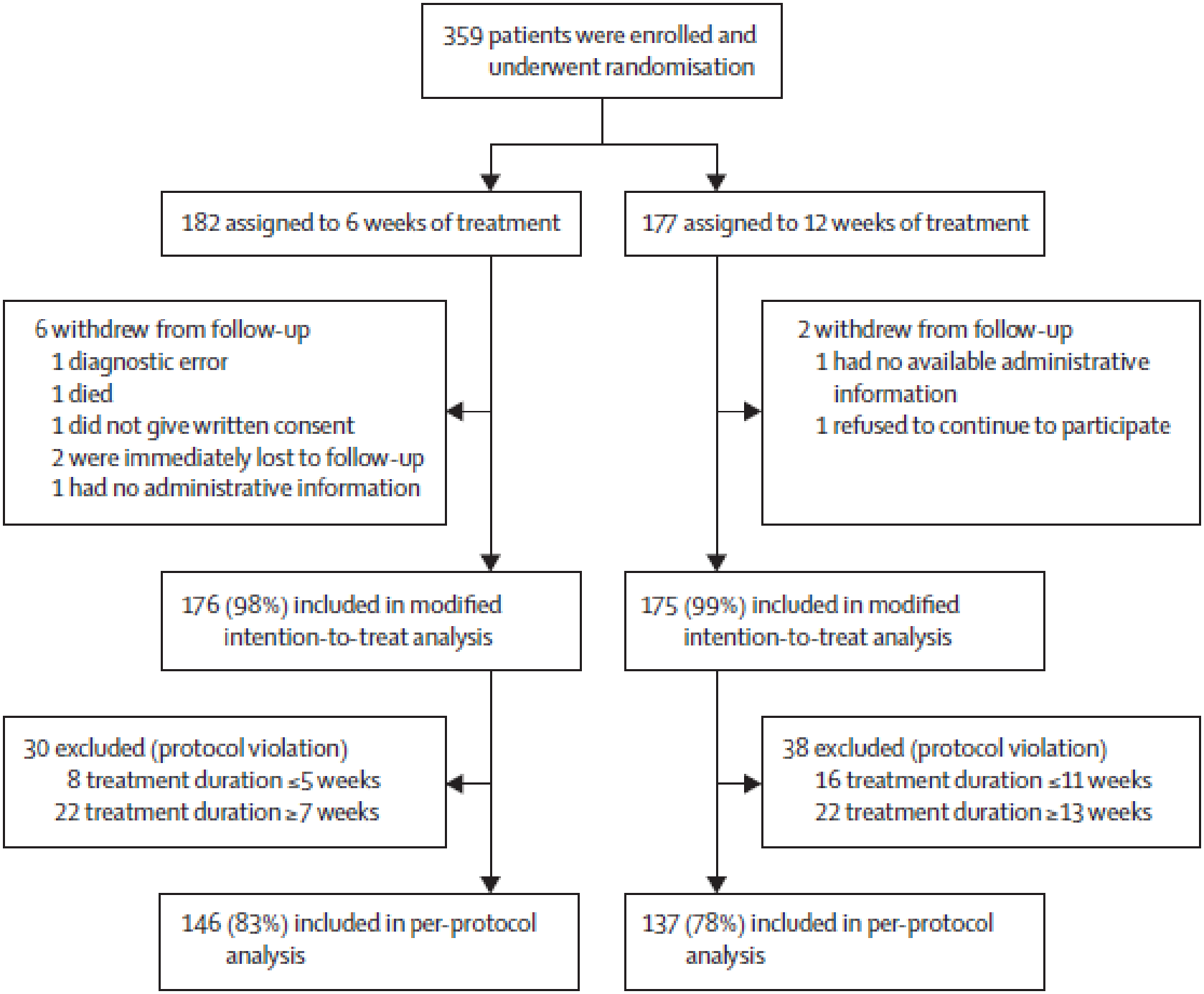

359 patients were enrolled and underwent randomisation
182 assigned to 6 weeks of treatment
177 assigned to 12 weeks of treatment
6 withdrew from follow-up
1 diagnostic error
1 died
1 did not give written consent
2 were immediately lost to follow-up
1 had no administrative information
2 withdrew from follow-up
1 had no available administrative information
1 refused to continue to participate
176 (98%) included in modified intention-to-treat analysis
175 (99%) included in modified intention-to-treat analysis
30 excluded (protocol violation)
8 treatment duration ≤5 weeks
22 treatment duration ≥7 weeks
38 excluded (protocol violation)
16 treatment duration ≤11 weeks
22 treatment duration ≥13 weeks
146 (83%) included in per-protocol analysis
137 (78%) included in per-protocol analysis

	6-week regimen (n=176)	12-week regimen (n=175)	Total (n=351)
Age, years	62 (16)	60 (17)	61 (17)
Female	61 (35%)	48 (27%)	109 (31%)
Comorbidity			
Immunodepression	5 (3%)	11 (6%)	16 (5%)
Diabetes	36 (20%)	18 (10%)	54 (15%)
Clinical characteristics			
Fever	87 (49%)	95 (54%)	182 (52%)
Back pain	172 (98%)	165 (94%)	337 (96%)
Duration of infection, days	34 (19–58)	34 (18–57)	34 (18–58)
Number of sites of vertebral osteomyelitis			
1	159 (90%)	154 (88%)	313 (89%)
≥2	17 (10%)	21 (12%)	38 (11%)
Type of site of vertebral osteomyelitis			
Cervical level	28 (16%)	24 (14%)	52 (15%)
Thoracic level	46 (26%)	50 (29%)	96 (27%)
Lumbar level	125 (71%)	121 (69%)	246 (70%)
Sacral level	19 (11%)	26 (15%)	45 (13%)
Associated endocarditis*			
Duke definite	23/127 (18%)	28/130 (22%)	51/257 (20%)
Probable	4/127 (3%)	1/130 (1%)	5/257 (2%)
Neurological signs	25 (14%)	32 (18%)	57 (16%)
Radiological biological characteristics			
MRI	157 (89%)	159 (91%)	316 (90%)
CT scan	88 (50%)	80 (46%)	168 (48%)
C-reactive protein concentration			
Absolute concentration, mg/L	118 (103)	126 (108)	122 (105)
Concentration >10 mg/L	157 (89%)	161 (92%)	318 (91%)
Microbiological diagnosis			
Blood culture	119 (68%)	121 (69%)	240 (68%)
CT-vertebral biopsy	67 (38%)	71 (41%)	138 (39%)
Perioperative surgical biopsy	9 (5%)	10 (6%)	19 (5%)
Microbiological identification			
Staphylococcus aureus†	69 (39%)	76 (43%)	145 (41%)
Coagulase-negative *Staphylococcus*‡	29 (16%)	32 (18%)	61 (17%)
Streptococcus spp	32 (18%)	31 (18%)	63 (18%)
Enterococcus spp	11 (6%)	15 (9%)	26 (7%)
Enterobacterial spp	22 (13%)	16 (9%)	38 (11%)
Anaerobia	7 (4%)	6 (3%)	13 (4%)
Other Gram-negative bacteria	6 (3%)	4 (2%)	10 (3%)
Other *Streptococcus*	4 (2%)	4 (2%)	8 (2%)

	6-week regimen (n=176)	12-week regimen (n=175)	Total (n=351)	p value
Treatment duration, weeks	6 (6–6·6)	12·1 (12–13)	9·3 (6–12·1)	..
Oral fluoroquinolone and rifampicin	76 (43%)	79 (45%)	155 (44%)	0·793
Other combinations				..
Rifampicin and aminoglycoside	22 (13%)	25 (14%)	47 (13%)	..
Rifampicin and amoxicillin	3 (2%)	4 (2%)	7 (2%)	..
Fluoroquinolone and aminoglycoside	14 (8%)	11 (6%)	25 (7%)	..
Fluoroquinolone and meticillin	4 (2%)	3 (2%)	7 (2%)	..
Fluoroquinolone and cephalosporin	6 (3%)	6 (3%)	12 (3%)	..
Amoxicillin and aminoglycoside	15 (9%)	17 (10%)	32 (9%)	..
Cephalosporin and aminoglycoside	4 (2%)	3 (2%)	7 (2%)	..
Meticillin and aminoglycoside	2 (1%)	0	2 (1%)	..
Other	30 (17%)	27 (15%)	57 (16%)	..
Intravenous treatment duration, weeks	15 (7·0–28·0)	14 (6·5–26·5)	14 (7·0–27)	0·579

Data are median (IQR) or number (%) unless otherwise specified.

Table 4: **Duration and type of antibiotics used in the study**

	6-week regimen (n=176)	12-week regimen (n=175)	Total (n=351)	p value
Back pain at 1 year	44/145 (30%)	41/138 (30%)	85/283 (30%)	1
Fever at 1 year (no=0, yes=1)	0	1 (1%)	1 (<1%)	0·48
C-reactive protein concentration at 1 year, mg/L	4·2 (1·9–7·2)	3·2 (1·8–6)	4 (1·8–6·3)	0·22
Adverse events	51 (29%)	50 (29%)	101 (29%)	1
Death	14 (8%)	12 (7%)	26 (7%)	0·85
Cardiorespiratory failure	7 (4%)	12 (7%)	19 (5%)	0·33
Digestive tract bleeding	4 (2%)	2 (1%)	6 (2%)	0·68
Clostridium difficile infection	2 (1%)	2 (1%)	4 (2%)	1
Antibiotic intolerance	12 (7%)	9 (5%)	21 (6%)	0·66
Other infection (not vertebral osteomyelitis)	5 (3%)	7 (4%)	12 (3%)	0·76
Device infection	1 (1%)	2 (1%)	3 (1%)	0·62
Neurological complications	7 (4%)	3 (2%)	10 (3%)	0·34
Endocarditis	3 (2%)	4 (2%)	7 (2%)	0·72

Data are number of patients with at least one event (%) or median (IQR), unless otherwise specified.

Table 3: Secondary outcomes and adverse events

	6-week regimen	12-week regimen	Difference in proportion of patients*	95% CI
Intention-to-treat analysis, n	176	175		
Cured	160 (90·9%)	159 (90·9%)	+0·1	−6·2 to 6·3
Cured and alive†	156 (88·6%)	150 (85·7%)	+2·9	−4·2 to 10·1
Cured without further antibiotic treatment‡	142 (80·7%)	141 (80·6%)	+0·1	−8·3 to 8·5
Per-protocol analysis, n	146	137		
Cured	137 (93·8%)	132 (96·4%)	−2·5	−8·2 to 2·9
Cured and alive†	133 (91·1%)	126 (92·0%)	−0·9	−7·7 to 6·0
Cured without further antibiotic treatment‡	NA	NA	NA	NA

Data are number, or number (%) unless otherwise specified. 32 patients (16 in the 6-week group and 16 in the 12-week group) were classified as cases of probable failure of treatment by the independent validation committee. Of 68 protocol violations excluded from the per-protocol population, 18 cases were classified as failure and 50 as cure in the intention-to-treat population. *6-week group minus 12-week group. †Death in cases classified as probable cure by the independent validation committee were classified as failure. ‡Further antibiotic treatment was regarded as a treatment failure. NA=not applicable.

Table 2: **Primary outcome analyses of patients with vertebral osteomyelitis according to duration of antibiotic treatment**

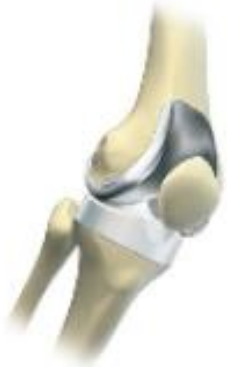
DATIPO

PHRC 2009

- 2 Durée d'Antibiothérapie **(6 semaines vs 12semaines) dans le Traitement des IPOA avec changement en 1T ou 2T long ou lavage articulaire**
- **Étude multicentrique, de non infériorité, prospective, randomisée, ouverte**

410 patients - 34 centres

Nov 2011 - Nov 2013



CRP….. et VS

- Michail M et al. The performance of serum inflammatory markers for the diagnosis and follow-up of patients with osteomyelitis. Int J Low Extrem Wounds. 2013
- The aim of this prospective study was to examine the performance of serum inflammatory markers for the diagnosis and follow-up of patients with osteomyelitis.
- A total of 61 patients (age 63.1 ± 7.0 years, 45 men and 16 women, 7 with type 1 and 54 with type 2 diabetes) with untreated foot infection (34 with soft-tissue infection and 27 with osteomyelitis) were recruited.
- Determination of the inflammatory markers was performed at baseline, after 1 week, after 3 weeks, and after 3 months of treatment.
- All values declined after initiation of treatment with antibiotics; the WBC, CRP, and PCT values returned to near-normal levels at day 7, whereas the values of ESR remained high until month 3 only in patients with bone infection.
- From the inflammatory markers, ESR is recommended to be used for the follow-up of patients with osteomyelitis.

Intérêt des marqueurs biologiques?

- VS
- CRP
- Obtaining a prerevision sedimentation rate and CRP is recommended by the panel to assess the success of treatment prior to reimplantation (C-III) (IDSA Guidelines 2012)

Procalcitonine

Maharajan K et al. **Serum Procalcitonin is a sensitive and specific marker in the diagnosis of septic arthritis and acute osteomyelitis.** J Orthop Surg Res. 2013

- Patients of all age groups (n = 82) with suspected Acute **Osteomyelitis** and Septic Arthritis were prospectively included in this study. All patients were subjected to TC, **CRP**, PCT, IgM Dengue, IgM Chikungunya, pus and blood culture and sensitivity. At the end of the study, patients were classified into 3 groups: Group 1 = Confirmed Pyogenic (n = 27); Group 2 = Presumed Pyogenic (n = 21); Group 3 = Non - infective inflammatory (n = 34).
- Group 1 has higher mean PCT levels than Group 2 and 3 ($p < 0.05$). PCT, at 0.4 ng/ml, was 85.2% sensitive and 87.3% specific in diagnosing Septic Arthritis and Acute **Osteomyelitis**. In comparison, PCT at conventional cut - off of 0.5 ng/ml is 66.7% sensitive and 91% specific.
- Serum Procalcitonin, at a cut - off of 0.4 ng/ml, is a sensitive and specific marker in the diagnosis of Septic Arthritis and Acute **Osteomyelitis**.

Diagnosing periprosthetic joint infection: has the era of the biomarker arrived?

- The diagnosis of periprosthetic joint infection (PJI) remains a serious clinical challenge.
- We evaluated the diagnostic characteristics of 16 promising synovial fluid biomarkers for the diagnosis of PJI.
- Synovial fluid was collected from 95 patients meeting the inclusion criteria of this prospective diagnostic study. All patients were being evaluated for a revision hip or knee arthroplasty, including patients with systemic inflammatory disease and those already receiving antibiotic treatment. The Musculoskeletal Infection Society (MSIS) definition was used to classify 29 PJIs and 66 aseptic joints. Synovial fluid samples were tested by immunoassay for 16 biomarkers optimized for use in synovial fluid. Sensitivity, specificity, and receiver operating characteristic curve analysis were performed to assess for diagnostic performance.
- Five biomarkers, including human **α-defensin 1-3, neutrophil elastase 2, bactericidal/permeability-increasing protein, neutrophil gelatinase-associated lipocalin, and lactoferrin,** correctly predicted the MSIS classification of all patients in this study, with 100% sensitivity and specificity for the diagnosis of PJI.
- Synovial fluid biomarkers exhibit a high accuracy in diagnosing PJI, even when including patients with systemic inflammatory disease and those receiving antibiotic treatment.
- Level II, diagnostic study.

Deirmengian C[1], Kardos K, Kilmartin P, Cameron A, Schiller K, Parvizi J. Clin Orthop Relat Res. 2014

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En conclusion

- Outre les grands essais comparatifs de réduction des durées de traitements
- Evaluer les biomarqueurs de l'inflammation permettrait une durée d'antibiothérapie adaptée au terrain, germes, biodisponibilité des antibiotiques, ancienneté de l'infection…

Merci de votre attention