

Hygiène, Soins Dentaires et Endocardite Infectieuse

Que faire et ne pas faire ?

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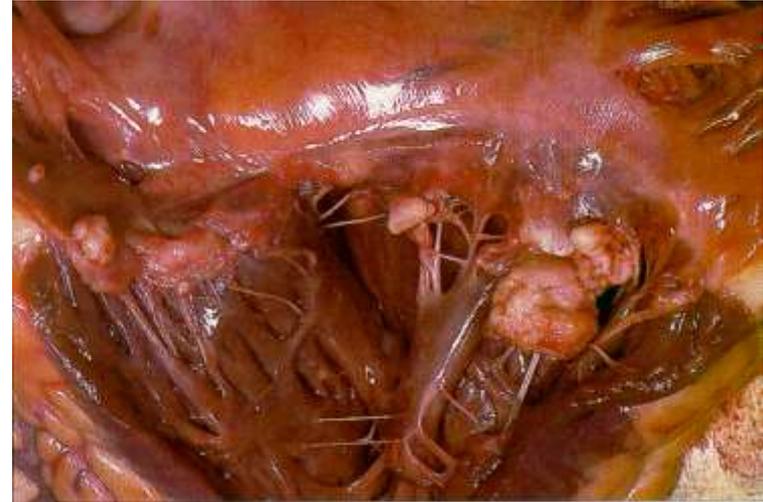
Aucun lien d'intérêt avec les industries de santé en rapport avec le thème de la présentation (loi du 04/03/2002)

L'endocardite infectieuse : une vieille dame de plus de 130 ans

« Oral sepsis is an important factor in the genesis of infective endocarditis » Horder TJ: Q J Med 1909, 2:289-324



**Sir William Osler
(1849-1919)**



THE GULSTONIAN LECTURES, ON MALIGNANT ENDOCARDITIS.

Delivered at the Royal College of Physicians of London, March, 1885.

By WILLIAM OSLER, M.D.,

Professor of Clinical Medicine at the University of Pennsylvania, Philadelphia.

March 7, 1885.]

THE BRITISH MEDICAL JOURNAL.

The Gulstonian lectures on malignant endocarditis. Br Med J 1885; 1 (1262, 1263, 1264): 467-70; 522-6; 577-9.

L'étiologie bucco-dentaire a été envisagée très vite:

Barnfield WF: Subacute bacterial endocarditis and dental procedures. American Journal of Orthodontics and Oral Surgery. Volume 31, Issue 2, February 1945, pages:A55-A88.

TABLE II
REPORTED CASES OF SUBACUTE BACTERIAL ENDOCARDITIS RESULTING FROM EXTRACTION OF TEETH

NO.	YEAR	AUTHOR	AGE	SEX	STATUS OF ENDOCARDITIS BEFORE EXTRACTION	INTERVAL	FIRST SYMPTOM OF SUBACUTE BACTERIAL ENDOCARDITIS	EVIDENCE OF SUBACUTE BACTERIAL ENDOCARDITIS	COMMENTS AND CONCLUSION
1	1926	Thayer ² Case 33M45941	28	M	Apparently had recovered from recent attack of rheumatic fever. Had gained 6 pounds	Not stated	Fever, sweating, fatigue, "symptoms of bacterial endocarditis"	Positive culture of blood. Subacute bacterial endocarditis of mitral valve	Probably subacute bacterial endocarditis resulting from postextraction bacteremia. Thayer believed the endocarditis resulted from extraction
2	1930	Rushton ⁴⁷ Case 1	26	F	No evidence of previous valvular damage	Indefinite. Excessive bleeding followed extraction	Record indefinite. Weakness, depressed, malaise, followed by pleurisy, and night sweats	"Confirmed at autopsy"	Unable to determine interim between extraction and onset of symptoms. Probably extraction caused the subacute bacterial endocarditis
3		Case 2	6	M	History of rheumatic fever at 4 years of age. Apparently inactive at time of extraction	Three days	Fever of 102.6° F. Blood positive for <i>Str. viridans</i> 9 days after extraction	Osler's nodes. Hemiplegia	Subacute bacterial endocarditis following postextraction bacteremia and on previously damaged valve
4	1931	Abrahamson ⁴⁸ Case 1	39	M	"Well compensated mitral regurgitation." No symptoms	"Shortly"	"Small red spots on his fingers"	Petechiae, blood positive for <i>Str. viridans</i> . "Tender nodules" at various sites on body	Good evidence that subacute bacterial endocarditis resulted from extraction. Some evidence that active rheumatic fever followed extraction

L'étiologie bucco-dentaire arrive en deuxième position

TABLE 2 Identified Portals of Entry in 238 Patients With Infective Endocarditis

Portal of Entry	
Cutaneous	96 (40)
Intravenous drug use	21
Nonintravenous drug use	75
Oral/dental	68 (29)
Gastrointestinal	56 (23)
Genitourinary	10 (4)
Ear, nose, and throat	5 (2)
Respiratory	3 (1)
Total	238 (100)

Values are n (%) or n.

TABLE 5 Oral and Dental Portals of Entry of Infective Endocarditis

Portal of Entry	
Dental procedures in the previous 3 mo	8 (12)
Extraction	4 (6)
Scaling	1 (1)
Endodontic procedure	1 (1)
No details	2 (3)
Dental infectious focus (decay, fracture, traumatism)	9 (13)
Dental infectious focus with no more details	22 (32)
Periodontal disease	7 (10)
Endodontal and periodontal disease	12 (68)
Radiological dental infectious focus (cyst, granuloma) without clinical lesion	9 (13)
Vigorous tooth brushing with frequent bleeding	1 (1)

Values are n (%).

Delahaye F, M'Hammedi A, Guerpillon B, de Gevigny G, Boibieux A, Dauwalder O, Bouchiat C, Vandenesch F: Systematic search for present and potential portals of entry for infective endocarditis. *J Am Coll Cardiol* 67(2):151-158. 2016.

Bactériémies associées aux gestes bucco-dentaires

Table 1. Incidence of bacteraemias arising after various types of dental procedures and oral activity (after Roberts 1999)

Procedure	Incidence of bacteraemia (%)
extractions	
single	51
multiple	68-100
periodontal surgery	
flap procedure	36-88
gingivectomy	83
scaling and root planing	8-80
periodontal prophylaxis	0-40
toothbrushing	0-26
dental flossing	20-58
interproximal cleaning with toothpicks	20-40
irrigation devices	7-50
chewing	17-51

Seymour RA, Preshaw PM, Thomason JM, Ellis JS, Steele JG : Cardiovascular diseases and periodontology. *J Clin Periodontol* 30:279-92, 2003.

Les bactériémies bucco-dentaires quotidiennes

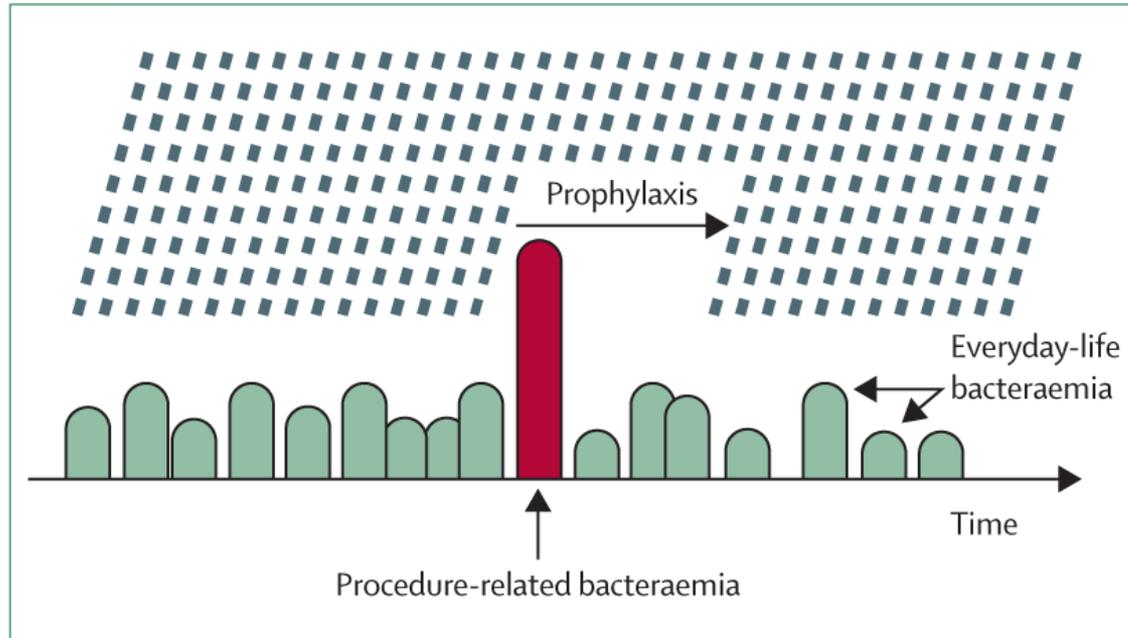


Figure 1: Current concept of the limited role of antibiotic prophylaxis against everyday versus procedures related bacteraemia

Adapted from P. Moreillon P et al. *Infective endocarditis prophylaxis: lessons from experimental model. Med Mal Infect* 32:605-12, 2002.

Duval X, Leport C: *Prophylaxis of infective endocarditis: current tendencies, continuing controversies. Lancet Infect Dis* 8:225-34, 2008.

Que faut-il faire ? Suivre les recommandations



French Society of Oral Surgery

Management of oral-dental foci of infection

Recommendations

Text of the argument of this work is accessible at

http://www.societechirorale.com/documents/Recommandations/foyers_infectieux_argument-EN.pdf

Conduct of screening to detect foci of infection

4. An oral-dental evaluation must necessarily consist of a clinical examination (interview, periodontal probing, test of viability, percussion, palpation of lymph node chains, etc. (HPA). *See also recommendation #28.*
5. An initial assessment must necessarily consist of a panoramic radiographic examination (HPA).
6. In the event of doubt in reading of a panoramic x-ray, the radiographic examination must be supplemented by other examinations: retro-alveolar views, conical ray volume tomography (cone-beam), CT-scan (HPA).

Méd Buc Chir Buc: 18:251-314, 2012.

Abbreviations:

ODFI: oral-dental focus of infection
PIRS: potential infectious risk situation
Level of evidence 1: established scientific evidence
Level of evidence 2: scientific presumption
Level of evidence 3: low level of scientific evidence
HPA: high professional agreement
RC: professional agreement with relative consensus

Que faut-il faire ? Suivre les recommandations



French Society of Oral Surgery

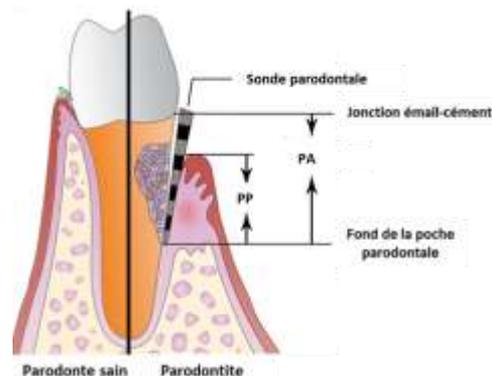
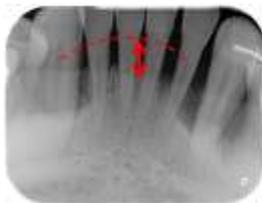
Management of oral-dental foci of infection

Recommendations

Patient at risk for infectious endocarditis

- An oral-dental evaluation must be performed as soon as possible before valvular surgery (HPA).
- During a clinical examination in patients with a high risk of infectious endocarditis, periodontal probing must be performed under antibiotic prophylaxis (HPA).
- It is especially ^[1] recommended that ODFI be ruled out in patients with a moderate risk of infectious endocarditis (HPA).
- It is imperative to rule out ODFI in subjects at high risk of infectious endocarditis (HPA).
- Surgical procedures intended to restore the oral cavity must be undertaken as soon as possible so that healing of the mucosa is acquired before valvular surgery (HPA).
- In patients at high risk of infectious endocarditis, oral-dental follow-up is recommended at a frequency of 4 to 6 months (RC).
- In subjects with moderate risk of infectious endocarditis, frequency of follow-up can be identical to that recommended for the general population (annual) (RC).

[1] Compared to a healthy patient, in whom it is recommended that focal infection be ruled out.



Situations at high risk of infectious endocarditis

Cardiac prosthetic valve
History of endocarditis
Congenital heart disease:
• Cyanogenic not repaired, including shunts and palliative conduct
• Completely repaired with prosthetic material, placed by catheterisation or surgically during the 6 months following the procedure
• Repaired with residual defects on the site or adjacent to the site of the prosthetic patch

Que faut-il faire ? Suivre les recommandations

Archives of Cardiovascular Disease (2017) 110, 482–494



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REVIEW

Position paper for the evaluation and management of oral status in patients with valvular disease: Groupe de Travail Valvulopathies de la Société Française de Cardiologie, Société Française de Chirurgie Orale, Société Française de Parodontologie et d'Implantologie Orale, Société Française d'Endodontie et Société de Pathologie Infectieuse de Langue Française



Point de vue d'experts sur l'évaluation et la prise en charge buccodentaire des patients atteints de cardiopathies valvulaires

Sarah Millot^{a,b}, Philippe Lesclous^c,
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Clément Messec^f, Mathieu Ballanger^g,
Jean-Luc Charrier^h, Philippe Trambaⁱ,
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Emmanuel Lansac^m, Christophe Tribouilloyⁿ,
Gilbert Habib^o, Xavier Duval^p, Bernard Jung^{q,r}

Table 2 Standard questions to be asked by the non-specialist to patients with valvular heart disease.

- Do your teeth hurt?
- Do your gums hurt or bleed during brushing or spontaneously?
- Do you think that your teeth move or that they have moved?
- Do you have the impression that you have a bad taste or a bad breath in your mouth?
- Do you feel uncomfortable in your mouth?
- Have you lost some teeth recently?
- Do you feel a swelling in your mouth?
- Have you noticed a colour change in one of your teeth?

At least one positive answer should lead to a consultation with a dentist.

Que faut-il faire ? Suivre les recommandations ?

Archives of Cardiovascular Disease (2017) 110, 482–494

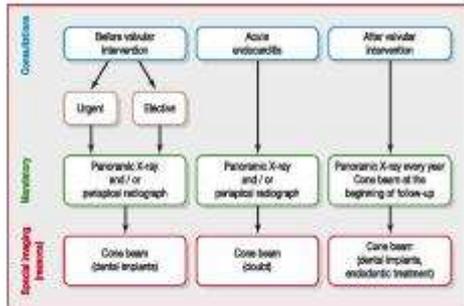


TABLE 1. Prevalence of AP in Endodontically Treated and Untreated Teeth, Identified by Panoramic, Periapical, and CBCT Images (n = 1508)

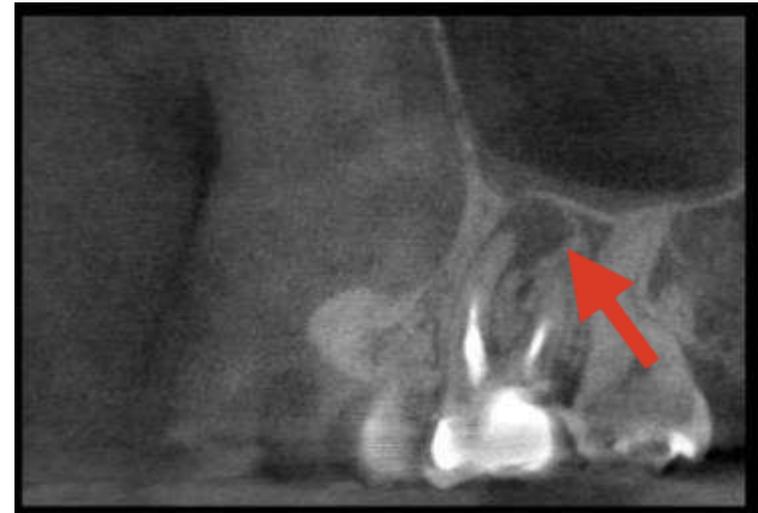
	Panoramic	Periapical	CBCT	P value*
Treated teeth (n = 1425)				
Presence of AP	251 (17.6%)	503 (35.3%)	902 (63.3%)	<.001
Absence of AP	1174 (82.4%)	922 (64.7%)	523 (36.7%)	
Nontreated teeth (n = 83)				
Presence of AP	18 (21.7%)	30 (36.1%)	62 (74.7%)	<.001
Absence of AP	65 (78.3%)	53 (63.9%)	21 (25.3%)	

AP, apical periodontitis; CBCT, cone beam computed tomography.

* χ^2 test.

Estrela C, X, Bueno MR, Leles CR, Azevedo B, Azevedo JR: Accuracy of cone beam computer tomography and panoramic and periapical radiography for detection of apical periodontitis. *J Endod* 34:273-9, 2008.

Que faut-il faire ? Suivre les recommandations ?



Remerciements: Dr. Alexis Gaudin

Que faut-il faire ? Suivre les recommandations ?



Remerciements: Dr. Alexis Gaudin

Patients à haut risque d'Endocardite Infectieuse

Actes contre-indiqués

Anesthésie intraligamentaire

Traitement endodontique des dents à pulpe non vivante, y compris la reprise de traitement canalaire

Traitement endodontique des dents à pulpe vivante en plusieurs séances ou sans champ opératoire (digue)

Amputation radiculaire

Autotransplantation

Réimplantation

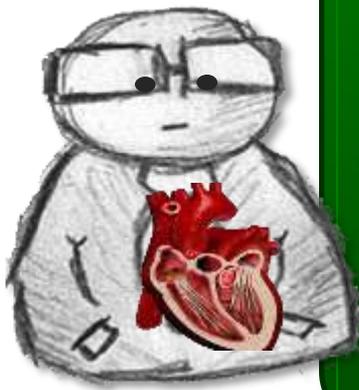
Chirurgie périapicale

Chirurgie parodontale

~~Chirurgie implantaire~~ et des péri-implantites

Mise en place de matériaux de comblement

Chirurgie préorthodontique des dents incluses ou enclavées



Antibiothérapie prophylactique



Endodontie



Actes bucco-dentaires invasifs	Patient		
	population générale	immunodéprimé	à haut risque d'endocardite infectieuse
Mise en place d'une digue	-	-	R _B
Soins endodontiques :			
Traitement des dents à pulpe vitale	-	R	R _B
Traitement des dents à pulpe nécrosée	-	R	ACI
Reprise de traitement†	-	R	ACI
Chirurgie périapicale :			
Sans comblement à l'aide d'un substitut osseux	- _A	R	ACI
Avec comblement à l'aide d'un substitut osseux	-	R	ACI

† : avec ou sans lésion inflammatoire périradiculaire d'origine endodontique (L.I.P.O.E.).



Antibiothérapie prophylactique



Avulsion, transplantation



Actes bucco-dentaires invasifs	Patient		
	population générale	immunodéprimé	à haut risque d'endocardite infectieuse
Avulsion dentaire :			
Dent sur arcade, alvéolectomie, sép. de racines	-	R	R _B
Amputation radiculaire	-	R	ACI
Dent de sagesse mandibulaire incluse	R _A	R	R _B
Dent incluse, en désinclusion, germectomie	R	R	R _B
Chir. préorthod. des dents incluses ou enclavées	R	R	ACI
Autotransplantation	R	R*	ACI

* Chez le patient immunodéprimé, le rapport entre bénéfice de l'intervention et risque infectieux devra être pris en compte.

Hygiène orale et Endocardite Infectieuse

The relationships between parameters and incidence of bacteremia with infective endocarditis-related bacterial species, according to group.

PARAMETER	TOOTHBRUSHING GROUP (n = 98)			TOOTH EXTRACTION WITH PLACEBO GROUP (n = 96)		
	Odds Ratio	95% CI ^a	P Value	Odds Ratio	95% CI	P Value
Demographic Measure						
Age	1.06	1.01-1.10	.017	1.03	0.99-1.07	.211
Sex (risk level = female)	1.09	0.42-2.82	.866	1.64	0.72-3.77	.241
Body mass index	0.99	0.93-1.05	.749	0.99	0.94-1.04	.630
Oral Hygiene Measure						
Mean plaque score	2.53	1.25-5.10	.010	0.74	0.44-1.22	.236
Plaque score ≥ 2	3.78	1.41-10.16	.008	0.90	0.37-2.16	.811
Mean calculus score	1.77	1.01-3.11	.048	0.93	0.60-1.42	.724
Calculus score ≥ 2	4.43	1.60-12.25	.004	0.82	0.29-2.33	.715
Gingivitis Measure						
Mean gingival score	1.62	0.77-3.40	.203	0.71	0.42-1.22	.217
Gingival score ≥ 2	1.61	0.61-4.20	.335	0.76	0.33-1.75	.518
Bleeding with toothbrushing (yes, no) [†]	0.89	0.33-2.38	.810	NA [‡]	NA	NA
Bleeding type with toothbrushing (generalized versus localized bleeding)	7.96	1.49-42.56	.015	NA	NA	NA
Periodontal Measure[§]						
Mean probing depth	1.02	0.68-1.53	.918	0.95	0.71-1.27	.735
Tooth mobility score	1.93	0.71-5.26	.200	1.01	0.44-2.34	.978
Caries or Dental Disease Measure						
Dental caries	4.40	0.54-35.72	.165	1.66	0.45-6.17	.452
Depth of dental caries	0.43	0.13-1.38	.155	0.21	0.03-1.81	.156
Apical lucency	2.37	0.89-6.34	.086	0.86	0.37-1.99	.724
Apical lucency size (millimeters)	0.87	0.48-1.58	.647	1.00	0.72-1.39	.995

^a CI: Confidence interval.

[†] NA: Not applicable.

[‡] Those who had bleeding were counted as "yes."

[§] Per millimeter change in probing depth.

LOCKHART ET AL

Lockhart P, Brennan MT, Thornhill M, Michalowicz BS, Noll J, Bahrani-Mougeot FK, Saser HC : Poor oral hygiene as a risk factor for infective endocarditis-related bacteremia. *J Am Dent Assoc* 140:1238-1244. 2009.

Hygiène dentaire chez les patients avec Endocardite Infectieuse

Table 2. Oral Hygiene Habits and Dental Procedures in the Prior 3 Months in Case Patients and Control Patients

Patient Oral Hygiene Habits	Whole Population		Cases: Oral Streptococcal IE		Controls: Nonoral IE		P Value
	N = 265		n = 73 (27.5%)		n = 192 (72.5%)		
Toothbrushing frequency							.623
More than twice daily	37	(16.2)	9	(13.6)	28	(18.1)	
Twice daily	85	(38.5)	28	(42.4)	57	(36.8)	
Once daily	64	(29.0)	20	(30.3)	44	(28.4)	
Less than once daily	21	(9.5)	7	(10.6)	14	(9.0)	
Toothbrushing after meal	124	(54.4)	30	(44.8)	94	(58.4)	.029
Interdental hygiene habits							
Toothpick use	64	(29.2)	24	(36.9)	40	(26.0)	.154
Dental water jet use	10	(4.5)	5	(7.6)	5	(3.2)	.194
Flossing	19	(8.6)	11	(18.7)	8	(5.1)	.011
Interdental brush use	23	(10.6)	9	(14.1)	14	(9.1)	.274
At least 1 of these behaviors	89	(39.6)	37	(55.2)	52	(32.9)	.006
Dental procedures							
In the 3 mo prior to IE*	23	(8.8)	12	(16.9)	11	(5.8)	.002
In the 2 mo prior to IE	19	(7.3)	11	(15.5)	8	(4.2)	.002
In the month prior to IE	7	(2.7)	3	(4.2)	4	(2.1)	.393

Data are presented as No. (%). Bold indicates statistically significant values.

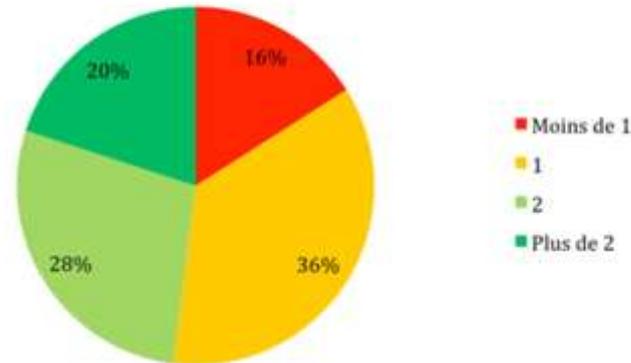
Abbreviation: IE, infective endocarditis.

*When considering only patients with a predisposing cardiac condition at high risk of IE (prosthetic valve, history of IE, and cyanotic cardiopathy), dental procedures in the previous 3 months were performed in 5.5% of cases vs 1% of controls ($P = .045$); these figures were 12.3% and 1.5% when considering all patients with a IE predisposing cardiac condition ($P < .001$) and 4.6% and 4% in patients without IE predisposing cardiac conditions ($P = 1$).

Duval X, Millot S, Chirouze C, Selton-Suty C, Moby V, Tattevin P, Strady C, Euvrard E, Agrinier N, Thomas D, Hoen B, Alla F: Oral streptococcal endocarditis, oral hygiene habits, and recent dental procedures: a case-control study. *Clin Infect Dis* 64:1678-1685. 2017.

ETUDE PRELIMINAIRE: 25 patients

Nombre de consultations par an après diagnostic d'EI



- 48% consultent au moins 2 fois/an
- Augmentation significative du nombre moyen de consultation par an après diagnostic: 1,52 contre 0,82 ($p=0,002$)

ETUDE PRELIMINAIRE: 25 patients

Habitudes d'hygiène bucco-dentaire

- 19 des 25 patients se brossaient les dents au moins 2x/jour
- 16 des 25 patients se brossaient les dents pendant au moins 2 minutes
 - 56% des patients réalisaient un brossage 2x/jour pendant 2 minutes
 - Pas d'augmentation significative du nombre de brossage après diagnostic
- 12 des 25 patients utilisaient du matériel d'hygiène complémentaire contre 6 avant diagnostic

Etat et suivi bucco-dentaires des patients à haut risque d'endocardite infectieuse

ETUDE PRELIMINAIRE: 25 patients

Statut bucco-dentaire

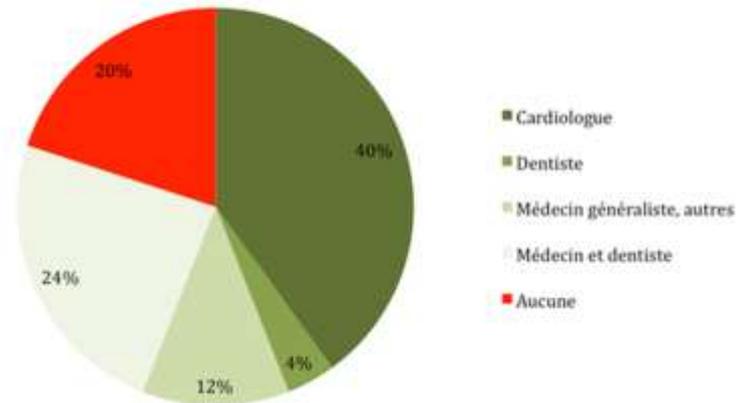
- Pas de différence significative du CAOD et de l'OHI-s entre les deux groupes

Patients	Groupe à haut risque d'EI	Groupe contrôle	p-value
CAOD	10,04 ± 6,6	11,5 ± 4,8	0,16
OHI-s	1,40 ± 1,14	1,31 ± 1,09	0,88

ETUDE PRELIMINAIRE: patients

- 80% des patients ont reçu des informations détaillées sur leur haut risque d'EI

Informations détaillées sur le risque d'EI



- 16 patients possédaient une carte de cardio-prévention

ETUDE PRELIMINAIRE: 25 patients

Information du patient

- 15 des 25 patients ont été dirigés vers un chirurgien-dentiste après leur diagnostic
- 12 des 25 patients ont reçu un enseignement à l'hygiène bucco-dentaire
- 9 des 25 patients (36%) ont été informé de la nécessité du suivi semestriel

Comment avancer ?



**Renforcer la formation académique et continue
des professionnels concernés**

**Renforcer l'information et le parcours de soins
des patients**



Patient	Acte bucco-dentaire	Prescription
à haut risque d'endocardite infectieuse	Anesthésie locale intraligamentaire	acte contre-indiqué
	<ul style="list-style-type: none">Actes de prévention non sanguinsAllongement de couronne cliniqueApposition radiculaireAnesthésie locale intraligamentaireAnesthésie locale subgingivale dans un tissu non infectéAutoimplantationAmblyon dent incluse, dent en désinclusion, gemmeuseAmblyon dent sur arête, diabolisme, séparation de racine	



AEPEI
Association pour
l'Etude et la Prévention de
l'Endocardite infectieuse



Cas clinique

- Jeune homme
- Cellulites naso-génienne gauche
- Hygiène orale médiocre
- Pas de suivi bucco-dentaire
- ATCD : EI tricuspide < 2 ans



Cas clinique



Cas clinique

Sans antécédent d'EI



Avec antécédent d'EI

- Drainage collection suppurée + antibiothérapie
- Avulsion des dents non conservables
 - 48, 44, 35, 37, 38, 28, 25, 23, 16
- Soins conservateurs (dentaires ET parodontaux)
- Traitements restaurateurs des édentements (PAP transitoires)
- Avulsion de toutes les dents restantes
 - Foyers infectieux d'origine endodontique
 - Foyers infectieux d'origine parodontale
- Traitements restaurateurs des édentements (PAC)

Cas clinique



- Jeune femme
- Parodontite ulcéro-nécrotique
- Douleurs: EVA 80/100
- Hygiène orale perfectible
- ATCD: Prothèse valve mitrale (TAVI)



Cas clinique



Cas clinique

Sans
TAVI



Avec TAVI

- Soins parodontaux + antibiothérapie (antalgique palier II + antiseptique)
- Traitement endodontique 24
- Soins restaurateur 24
- Traitement endodontique 24 ???
- Avulsion 24
- Compensation édentement
- « Bridge » ou implant dentaire

Remerciements



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