SUNTEXT REVIEWS

SunText Review of Dental Sciences
ISSN: 2766-4996

Open Access
Research Article
Volume 4:1

Drugs Prescription for Children: Survey among Tunisian Free Practices Dentists

Yamina E*, Chayma BA, Sawssen B, Fatma M, Ahlem B, Fethi M and Hichem G

Dental Faculty of monastir Tunisia (Tunisia), Dento facial biolgical and clinical Appraoch laboratory, Tunisia

***Corresponding author:** Yamina E, Dental Faculty of monastir Tunisia(Tunisia), Dento facial biolgical and clinical Appraoch laboratory LR2FS10, 5000 Monastir, Tunisia; E-mail: yamina_elelmi@yahoo.fr

Received date: 10 March 2023; **Accepted date:** 20 March 2023; **Published date:** 27 March 2023

Citation: Yamina E, Chayma BA, Sawssen B, Fatma M, Ahlem B, Fethi M, et al. (2023) Drugs Prescription for Children: Survey among Tunisian Free Practices Dentists. SunText Rev Dental Sci 4(1): 160.

DOI: https://doi.org/10.51737/2766-4996.2023.160

Abstract

Context: Prescribing is not an insignificant act and the knowledge that recommendations exist does not mean that they are integrated by practitioners. Exceptionally in pediatric dentistry, prescribing is never systemic and requires special attention. Indeed, vigilance must be redoubled because children's bodies are not as mature as those of adults.

Aims: Evaluate the degree of knowledge of the recommendations and the quality of prescribing for children in a population of Tunisian free practice dentists.

Setting and design: A descriptive study involving 154 free practice Tunisian dentists was conducted.

Methods: It was performed using a questionnaire composed of 57 questions.

Statistical analyses: SPSS 24.0 and Microsoft Excel 2010 software. Significance was considered for $p<0.05$.

Results: This study showed that 90.9% of the participants were used to update their knowledge. The most prescribed antibiotic for curative antibiotic therapy with no known risk of beta-lactam allergy was amoxicillin with 89,9% of responses and spiramycin with 51.94% in beta-lactam allergic children. To alleviate pain, the molecule of choice was paracetamol with 72.1% of the responses, with dentists who are accustomed to updating their having the most adequate management ($p=0.042$) With regard to sedation per os, 64.9% of the practitioners surveyed correctly answered the optimal dosage of antihistamines and it was the dentists specializing in this area who have the most adequate management ($p=0.005$).

Conclusion: This study revealed a lack of knowledge on the part of dentists: the molecules prescribed are not always adapted.

Keywords: Child; Antibiotic; Prescriptions; Pediatric dentistry

Introduction

In dentistry, the majority of etiological treatments for oral diseases are not medicinal, but there are still situations where prescription is necessary .The act of prescription must be part of a therapeutic strategy. In fact, the prescriptions must be preceded by a rigorous interrogation of the patient in order to know his surgical and medical history, his current treatments in order to detect a possible drug interaction or a contraindication to a prescription and whether or not he has allergies.1 In the particular case of pediatric dentistry, prescribing is never systematic and needs special attention as a matter of fact that children's bodies are not as mature as those of adults.2 This study aimed to focus on evaluating the degree of knowledge of the recommendations and the quality of prescribing for children in a population of Tunisian free practice dentists.

Methods

Study design and sample

It was a cross-sectional survey to assess the prescribing practices of general and pediatric dentists in Tunisia, through a questionnaire. The sample consisted of 154 dentists.

Inclusion criteria

Dentist who agreed to participate in the study and completed the entire questionnaire.

Non-inclusion criteria

Non-qualified dentist and those who did not answer all the questions.

Conduct of the study

A Survey sheet was shouted on the Google forms software, guaranteeing the storage of data on the server and the anonymity of the respondents, and sent via dentist groups on social networks.

Data collection

Data were collected using a questionnaire composed of 57 questions that included two main domains: demographic questions pertaining to respondents personal characteristics, as well as to their practice characteristics and a set of questions concerning prescribing in children divided into sub-parts : antibiotics; analgesic; sedation; fluoride, antifungal and prescription for patients at risk.

Statistical analysis

Statistical analyses were performed using SPSS 24.0 and Microsoft Excel 2010 software. Significance was considered for $p<0.05$. Pearson chi-square test and Fisher test were used to compare the different variables.

Results

The sample included 154 dentists who agreed to participate and answered all the questions.

Table 1: *Demographics and practice characteristics of study sample (N = 154).*

VARIABLE	NUMBER (%) OF DENTISTS
Sex	
Male	40,3%
Female	59,7%
Age	
< 30 years	38,3%
30 to 45 years	53,9%
45 to 60 years	6,5%
>60 years	1,3%
Dental School Attended	
Dental Faculty of Monastir Tunisia	90,9%
Other	9,1%
Practice Location	
Urban	74,7%
Rural	7,8%
Suburban	17,5%

Practice Type	
General Dentists	90,3%
Pediatric Dentists	5,2%
Graduation Date	
Before 1990	1,3%
Between 1990 and 1999	3,2%
Between 2000 and 2009	17,5%
After 2010	78%
Years of experience	
< 5 years	57,1%
5 to 10 years	22,1%
10 to 20 years	16,9%
>20 years	3,9%
Children in the daily practice	
< 10 %	40,3%
10% to 30 %	51,3%
30 % to 50 %	1,9%
>50 %	6,5%
Age of children	
< 4 years	2,6%
4 to 10 years	90,3%
>10 years	7,1%
Practitioner training	
Yes	33%

NO	58%
Updating knowledge	
Yes	90,1%
NO	9,1%

Table 2: *Responses to prescription questions: adherence to professional guidelines (N = 154).*

VARIABLE	General question	Type of Prescribed molecule	Dosage of prescribed molecule
Antibiotics	**Professional training**	**First-line curative antibiotic therapy with no known risk of beta-lactamin allergy**	**First-line curative antibiotic therapy with no known risk of beta-lactamin allergy**
	Yes 56,6 %	Amoxicillin 89;6%	Correct dosage* : 11,59%
	No 43,5%	Amoxicillin -clavulanic acid 7,8%	
		Azithromycin 1,3%	**Beta-lactamin allergy**
		Metronidazol 1,3%	Correct dosage* : 25%
		Beta-lactamin allergy	
		Spiramycin 51,94%	
		Clindamycin 31,2%	
		Azithromycin 9,1%	
		Second-line curative antibiotic	

		Amoxicillin -clavulanic acid 80%	
		Amoxicillin- Metronidazol 14,3%	
		Spiramycin-Metronidazol 3,2%	
		Cycline prescription	
		No : 90,3%	
		Yes : 9;7%	
Patients at risk	**Attitude**	**No known risk of beta-lactamin allergy**	**First-line curative antibiotic therapy with no known risk of beta-lactamin allergy**
	Systematic referral to a specialist 18,8%	Amoxicillin 68,8%	Correct dosage* : 73,4%
	Patient care 81,2% (43,5% without precaution)	Amoxicillin -clavulanic acid 19;5%	
			Beta-lactamin allergy

	Prophylactic antibiotic therapy indication	**Beta-lactamin allergy**	Correct dosage* : 63,6%
	Only invasive act 66,2%	Clindamycin 63,%	
	All acts 33,8%		
Analgesic	**Indication**	Paracetamol 72,1%	Correct dosage* : 31,2%
	Relieve pain 86,4%	Ibuprofen 20,1%	
		Codeine 1,2%	
	The impossibility of taking a soon appointment 8,4%		
	Parent satisfaction 2,6%		
Sedation	**Frequency**	Benzodiazepines 39%	Correct dosage*: 64,9%
	Never used 90%	Antihistamine 24,6%	
	Used 10%		
Fluoride	**Reading guidelines**	**Galenic form of the molecule**	Correct dosage*: 66,9%
	No 44,2%	Tooth paste 53,2%	
	Yes 55,8%	Mouth wash 12,3%	
	Realization of the fluoride balance	Fluoride gel 8,4%	

	No 98,7%	Pills 5,2%	
	Yes 1,3%		
	Prescription of fluoride in children aged between 6 months and 6 years		
	No 57,8%		
	Yes 42,1%		
	Dentist prescribing Fluoride		
	Yes 18.2%		
	No: 81.8%		
Antifungal	**Indication**	Fluconazole 32,5%	Not mentioned
	Oral thrush 40,3%	Amphotericin B 18,8%	
	Stomatitis 11 %	Nystatin 18,8%	
* Correct dosage referring to National Agency for the Safety of Medicines and Health Products (ANSM), Food and Drug Administration (FDA)			

Table 1 presents dentists' demographic and practice characteristics. The sample consisted of 59.70% males and 40.30% females. Most of them were alumni of the Dental Faculty of Monastir Tunisia. The most represented age group was between 30 and 45 years. A professional experience of less than 5 years was noted in 57.1% of practitioners .Nearly 90% of the respondents were general dentists and 5% were pediatric dentists. The majority of dentists worked in a private practice in urban areas. Findings showed that 90.9% of dentists had the habit to update their knowledge about drug prescription. Among the 154 dentists who answered the questions, only 33% completed an internship in a Pediatric Dentistry Department. Regarding the percentage of children in daily practice, 51.3 % of them met between 10 to 30% of children during their practice. Most of these children (90, 3%) were aged between 4 and 10 years.

Table 2 presents dentists responses concerning prescribing in children:

Antibiotics

More than half of the participants (56, 5%) answered that they took vocational training or read a recent article on the proper use of antibiotics. The most prescribed antibiotic as part of first-line curative antibiotic therapy with no known risk of beta-lactamin allergy was Amoxicillin with 89.9% of responses and only 11.56% of dentists indicated the correct dosage as recommended by the National Agency for the Safety of Medicines and Health Products (ANSM).Regarding antibiotic therapy in children allergic to beta-lactamin, the molecule of choice was spiramycin with a percentage equal to 51.94% .The association amoxicillin - clavulanic acid as part of the second-line curative antibiotic therapy was used with a percentage equal to 79.2%. Only 11% used Cycline in patients diagnosed with aggressive periodontitis.

Prescription for patients at risk

The molecule of choice for prophylaxis in patients at risk was amoxicillin for 68.8% of practitioners and 73.4% of them prescribed the exact dose.

Analgesic

To relieve pain, the molecule of choice was Paracetamol with 72, 1% of the responses of which 31, 2% mentioned the correct dose.

Sedation

With regard to sedation, only 10 % of the participants surveyed declared that they have used it. For oral sedative premedication the most prescribed molecule was Benzodiazepine (39%). For those who prescribed benzodiazepines, 63.3% of them prescribed the correct dosage, while for antihistamines 64.9% prescribed the exact dosage.

Fluoride

55, 8% of the participants mentioned that they read latest fluoride prescription recommendations. Of all the participants 57.8% never prescribed fluoride to children aged 6 months to 6 years.

Antifungal

The molecule of choice of the fungal infections was Fluconazole with a percentage equal to 32, 5%. Table 3 presents the results of the bivariate analyses in which factors associated with dentists' practices and the correct dosage of the molecule prescribed were examined. For Antibiotics, the adequate posology of Amoxicillin and Spiramycin was influenced by the practice type (P = 0.004) and Clindamycin by dental school attended (P = 0.001). In addition, for Analgesic, dentists who completed some type of professional training after graduation were more likely to prescribe Paracetamol in accordance with the professional guidelines (P =0.042). For the Sedation, prescribing the correct dosage of Antihistamine was impacted by the practice type (P = 0.005).

Discussion

The participation was predominantly male with 59.7% and it was the youngest practitioners who participated the most in this study. In fact the most represented age group was that of 30 to 45 years old with 53.9% of practitioners, which was similar to a study carried out within the UFR Nantes [3]. These results showed that young people are more inclined to question their professional knowledge .Although 90.9% of practitioners said that they were in the habit of updating their knowledge and 56.6% of them indicated that they underwent professional training or read a recent article concerning the correct use of antibiotics in the last year during the prescription of antibiotics; they relied on clinical sense and experience when prescribing antibiotics. Similar results for the use of specific recommendations were observed in the US national study [4,5] this clearly indicates the increased likelihood of misuse and unwarranted use of antibiotics that may contribute to the world of antimicrobial resistance. Amoxicillin was the most prescribed antibiotic in the First-line curative antibiotic therapy with no risk known of beta-lactamin allergy (89,6%) which was similar to the other studies carried out in other parts of the world [3-12]. Only 11,59% of dentists mentioned the correct posology as recommended by the ANSM6 it was the practitioners specialists who prescribed the adequate dosage with a significant association (p = 0.038) .Regarding antibiotic therapy in children allergic to Beta-lactamin, the molecule of choice was Spiramycin for 51.94% practitioners. The adequate dosage was influenced by the professional status of the practitioners: specialist dentists prescribed it more than general practitioners. The association was statically significant (p = 0.004) .These results can be explained by the fact that general practitioners have little contact with children in their practice so the interest of continuing education which aims to develop medical knowledge and adapt practices to the permanent evolution of knowledge. When the first line curative antibiotic therapy is judged ineffective, the molecule of choice for second-line antibiotic therapy was the Amoxicillin combination with Clavulanic acid for 79.2% of the answers.Similar results were found in the study of the UFR of Nantes [3]. As for the prescription of Cyclines, the majority of practitioners did not prescribe it: this can be explained by their interest in avoiding the risk of dental Dyscromia or enamel Hypoplasia during systemic administration in young children. Eleven percent of practitioners indicated it in the patients diagnosed with aggressive periodontitis, which is in line with the recommendations of the ANSM [13] the attitude of practitioners concerning the management of patients at risk of infection seems mostly inadequate. The attitude closest to recommendations is "an exceptional referral to a specialist" since the majority of patients at risk of infection can be treated by dental office, with respect for the precautions specific to each case. More worryingly, 43.5% of practitioners did not take specific precautions to patients at risk of infection. They said to respect only the precautions hygiene standards, which are strictly aimed at preventing the transmission of germs patient-to-patient, patient-to-caregiver, and caregiver-to-patient. Regarding prophylactic antibiotic therapy, 66.2% of practitioners indicated it only for invasive procedures, this goes in the direction of ANSM recommendations [13] for prophylactic antibiotic therapy in children without allergic risk, 73.4% of practitioners declared prescribing amoxicillin. For children allergic to Beta-lactams, 63.6% of practitioners prescribed Clindamycin, this response was influenced by the original faculty: the dentists who performed them initial training at the Faculty of Dental Medicine of Monastir prescribed it less correctly than

other practitioners, the association was statistically significant (p=0.001), which means that there is still information work to be done with practitioners in order to better guide them in their prescription. To reduce pain, the molecule of choice was Paracetamol (72.1% of responses) unlike studies conducted in British Columbia and Canada [1] where ibuprofen being the most commonly prescribed non-opioid analgesics. For the rest of the answers, some (1.2% of practitioners) prescribed Codeine, which is not in line with the recommendations: In 2017, the Food and Drug Administration (FDA) issued its warning on stronger, a "contraindication" to codeine in children under 12 years, due to the serious risks, including slowed or difficult breathing and death, which appear to be a higher risk in children under 12 years [14]. Regarding the optimal dosage of Paracetamol for children less than 12 years, 31.2% of practitioners answered correctly. These are the doctors dentists accustomed to updating their knowledge of the correct use of drugs that had the most adequate prescription, with a significant association (p=0.042). With regard to sedation per os, 64, 9% of the practitioners surveyed, correctly answered the optimal dosage of Antihistamine and it was the dentists specializing in this area who have the most adequate management (p = 0.005). The knowledge that the recommendations exist does not however mean that they are well known and/or integrated by the practitioners. .In fact, 55% of practitioners declared that they had taken note of the recommendations of the ASNM of 2008, but they were more numerous (91.6%) those who did not make the fluoride balance, the realization of which, must be carried out before any medical prescription in many countries in order to avoid overconsumption in the face of the multitude of sources of intake [14-18]. This can be explained by the difficulty in carrying out the fluoride balance [15]. In pediatric dentistry, antifungals are mainly used in cases of oral candidiasis [19,20]. In this study 40.3% of practitioners prescribed antifungals for oral thrush. The molecule of choice of the fungal infections was Fluconazole with a percentage equal to 32, 5% followed by Amphotericin B with 18, 8% which was similarly observed in the literature [21,22].

Conclusion

This study revealed a poor mastery of the recommendations and a lack of knowledge on the part of the dentists: the molecules prescribed are not always adapted. Appropriate prescriptions were noted with specialist dentists. A strategy must be implemented to improve the quality of prescription.

References

1. Etminan M, Nouri MR, Sodhi M, Carleton BC. Dentists' Prescribing of Analgesics for Children in British Columbia, Canada. J Can Dent Assoc. 2017; 6.
2. Goel D, Goel GK, Chaudhary S, et al. Antibiotic prescriptions in pediatric dentistry: A review. J Family Med Prim Care. 2020; 9: 473.
3. Benoit B. La prescription medicamenteuse en odontologie pediatrique: enquete pilote realisee au sein de la faculte dodontologie de Nantes. Dis; 2017.
4. Cherry WR, Lee JY, Shugars DA, White RP, Vann WF. Antibiotic use for treating dental infections in children. The J the Amer Dent Associ. 2012; 143: 31-38.
5. Sivaraman SS, Hassan M, Pearson JM. A national survey of pediatric dentists on antibiotic use in children. Pediatr Dent. 2013; 35: 546-9.
6. Aidasani B, Solanki M, Khetarpal S, Pratap RS. Antibiotics: their use and misuse in paediatric dentistry. A systematic review. Eur J Paediatr Dent. 2019; 20: 133-138
7. Al-johani K, Reddy SG, Al Mushayt AS, et al. Pattern of prescription of antibiotics among dental practitioners in Jeddah, KSA: A cross-sectional survey. Niger J Clin Pract. 2017; 20: 804-810.
8. Goud SR, Nagesh L, Fernandes S. Are we eliminating cures with antibiotic abuse? A study among dentists. Niger J Clin Pract 2012; 15: 151-5.
9. Konde S, Jairam LS, PeethambarP, Sunil Raj N, Chandra KN. Antibiotic overusage and resistance: A cross-sectional survey among pediatric dentists. J Indian Soc Pedod Prev Dent. 2016; 34: 145-151.
10. Peric M, Perkovic I, Romic M, Simeon P, Matijevic J, Mehicic GP, et al. The Pattern of Antibiotic Prescribing by Dental Practitioners in Zagreb, Croatia. Cent Eur J Public Health. 2015; 23: 107-113.
11. Peterson LJ. Antibiotics for oral and maxillofacial infections. In Newman MG, Kornman KS, editors. Antibiotic/Antimicrobial Use in Dental Practice. St. Louis, MO: Mosby; 1990: 159-71.
12. El-Ma'aita AM, Ahmad AM, Afghani AK, Hammad MM, Hassona Y. Antibiotic Prescription Practice in Endodontics; A Cross Sectional Study. J Inter Dent Med Res. 13.4 .2020: 1376-1383.
13. De Securite SAnitaire, Agence Française. De Produits de Sante. Prescription des antibiotiques en pratique bucco-dentaire. Recommandations de bonne pratique. Med Mal Infect. 2011; 42:193-212.
14. US Food and Drug Administration FDA Drug Safety Communication: FDA restricts use of prescription codeine pain and cough medicines and tramadol pain medicines in children; recommends against use in breastfeeding women. 2017.
15. Droz D, C. Karmann. Le bilan fluore: un prealable a toute prescription de fluor chez l enfant. Inf. Dent. 1997; 1249-1253.
16. Chavez BA, Vergel GB, Caceres CP, Perazzo MF, Vieira Andrade RG, Cury JA. Fluoride content in children's dentifrices marketed in Lima, Peru. Brazilian Oral Res. 33; 2019.
17. EUROPEAN ACADEMY OF PEDIATRIC DENTISTRY (EAPD). Guidelines on the use of fluoride in children: an EAPD policy document. Eur Arch Paediatr Dent. 2009; 10: 129- 135
18. Rozier RG, Adair S, Graham F, Iafolla T, Kingman A, Kohn W, et al. Evidence-Based clinical recommendations on the prescription of dietary fluoride supplements for caries prevention. A report of

the american dental association council on scientific affairs. JADA. 2010; 141: 1480-1489.

19. Puia-Dumitrescu M, Brian Smith P. Antifungal drugs in newborns and children. Pediat Cli. 2017; 64: 1389-1402.
20. Cecinati V, Guastadisegni C, Russo FG, Brescia LP. Antifungal therapy in children: an update. European j pediat. 2013; 172: 437-446.
21. Hamdy RF, Zaoutis TE, Seo SK. Antifungal stewardship considerations for adults and pediatrics. Virulence. 2017; 8: 658-672.
22. Jeon GW, Koo SH, Lee JH, et al. A comparison of AmBisome to amphotericin B for treatment of systemic candidiasis in very low birth weight infants. Yonsei Med J. 2007; 48: 619-626.