Original Article

Oral pain and infection control strategies for treating children and adolescents in India

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Abstract

Introduction: Oral and dental health form an integral part of complete well being of an individual and society at large. Promoting oral health and societal progression go hand in hand. **Aim:** To investigate dentists' attitudes about pain and infection control while treating children and adolescents by assessing their recommendations of pre- and postoperative analgesics and antibiotics, and use of local anesthesia (LA) for definitive treatment in different clinical scenarios. **Materials and Method:** A total of 400 dentists, both general dental practitioners (GDPS) as well as specialist dentists, were surveyed over a period of 2 months by using a pre-tested close-ended questionnaire. The data was statistically analyzed using Pearson's Chi-square test and backward logistic regression analysis for analysis of categorical variables and independent variables, respectively. Level of significance was set at 5%. **Results:** It was found that there was a gross overuse of antibiotics and analgesics and under use of LA by GDPs compared to specialist dentists. Postoperative antibiotics and analgesics were used more commonly than preoperative antibiotics and analgesics. These strategies were used more often in permanent teeth than primary teeth except the use of LA, which was used with equal frequency in both primary as well as permanent dentition. **Conclusion:** Dependence on antibiotics and analgesics for achieving pain and infection control in children has to be minimized and focus has to be shifted on judicious definitive treatment involving use of LA, aseptic techniques, and behavior management techniques.

Keywords: Adolescents, analgesics, antibiotics, antimicrobial resistance, behavior management problem, children

Introduction

Oral diseases exhibit a wide array of symptoms. Majority of the population has a treatment seeking behavior in case of oral diseases which are essentially symptom oriented. Patients seek dental opinion/treatment only when it is associated with presence of pain in mouth and/or swelling in orofacial region.

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Pain is defined as an unpleasant sensory and emotional experience that is associated with actual or potential tissue damage.[1] Pain while undergoing dental treatment gives rise to development of fear or anxiety as well as behavioral problems when it comes to children.[2] Children with more carious lesions that have progressed to deeper lesions experience more episodes of pain, and thus reduced overall quality of life. Infection spreads rapidly in children through facial spaces because of wide marrow spaces and facial bones which are less developed.[3] It leads to facial asymmetry and disfigurement in children that paves the way for development of fear and anxiety not just in children but parents as well.

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More pain that child experiences during dental treatment, heightens the chances of developing fear and anxiety, thereby giving rise to behavioral management problems. Reported prevalence of dental fear and anxiety as per different studies is 7–9%.[4-6] Fear, anxiety, and behavioral management problem are the reasons why general dental practitioners (GDPs) and other specialist dentists refer the child to a pedodontist. Hence, pain and infection control (both preoperative and postoperative) form the cornerstone of dental treatment.

Various factors like sex, specialty, years of practice, having own children, hours spent over treating children played a significant role in deciding various strategies related to pain and infection control in children and adolescents.[7-12]

Injudicious use of pharmaceutical agents not only contributes to rise in antimicrobial resistance (AMR) but also increases the economic burden hence this is a matter of serious concern that needs to be curbed at primary care level.[13] Collection of epidemological data regarding use of pharmaceutical agents will be helpful in formulation of policies regarding judicious use of pharmaceutical agents. Therefore, the present study was conducted with an aim to investigate dentists' attitude toward pain and infection control while treating children and adolescents.

Materials and Method

Present study was descriptive and analytical cross-sectional study conducted among dentists of India after taking institutional ethical clearance. Ethics committee approval was obtained vide no. DS3/2020/02: dated 20-Apr-2020. It was conducted in form of an online survey. The link for the study was generated using internet tool from the free online site www.survey.com. The duration of the study was 2 months that included data collection, input, and statistical analysis. A total of 400 dental surgeons including general as well as specialist dentists were included in the study. Sample size was calculated based on reference study by Berlin *et al.*[7] The criteria for inclusion was:

1. Age less than 65 years
2. Actively practicing dentistry
3. Dentists who see minimum of 15 children per month.

The nature and purpose of study was explained in form of short note prior to filling up the survey questionnaire. This was followed by taking online consent from participant. Its voluntary nature and strict confidentiality was explained and assured. A pre-tested close-ended questionnaire used in present study was adopted from previous study conducted in Sweden and then modified. Questionnaire was divided into 3 parts:

Part 1 – Demographic data of the participant

Part 2- Questions related to imaginary clinical scenarios like: restoration, extraction andtraumatic dental injury involving primary as well permanent teeth.

Part 3– Questions regarding most commonly used preoperative analgesics and antibiotics, if any, and duration prior to treatment, when they were administered.

Responses to questions were obtained in form of a 5-point likert scale which was then dichotomized for statistical analysis. To establish face and content validity of questionnaire, a pilot study was first conducted over 15 random dentists. The data for the pilot study was not included in the final analysis. Cronbach alfa value was found to be 0.75, which was deemed good. It was ensured that survey could be filled only once, in order toavoid duplication of data. Reminders for filling up the survey were sent at interval of 3 days, 1 week, and 1 month, respectively.

Statistical analysis

Data was entered in the digital spreadsheet (Microsoft Corp Redmond, WA, USA). Descriptive and inferential analysis was performed using SPSS STATISTICS 21.0. Descriptive results were obtained as Mean ± SD and frequency (percent). Pearson's Chi-square test and Backward logistic regression analysis were further used for analysis of categorical variables and independent variables, respectively. Level of significance was set at 5%.

Results

Online link of the present study was mailed to 400 dentists, out of which 276 dentists responded to the study, thereby achieving a response rate of 70%. Response rate was higher in case of specialist dental practitioners compared to GDPs. A statistically significant difference was observed between response rate of different age groups, males and females as well as different work experience groups (P value < 0.005). The sociodemographic characteristics of study sample are shown in Table 1. Distribution of response of study sample as per 5-point likert scale is shown in Table 2. Dichotomized responses selected for statistical analysis are shown in Table 3.

Most commonly used preoperative analgesics, whenever used, was paracetamol, while most commonly prescribed preoperative antibiotic was amoxicillin. Majority of GDPs and specialist dental practitioners who advocated use of preoperative analgesics and antibiotics recommend their administration half an hour prior to commencement of dental treatment.

Use of preoperative analgesics and antibiotics prior to commencement of dental treatment was recommended more by GDPs and least by specialist pediatric dentists. Specialist pediatric dentists used all type of infection control and pain reduction strategies except use of local anesthesia (LA) less frequently than GDP and other specialists. Use of LA was more with specialist pediatric dentists compared to GDP and other speciality dentists.

Specialist pediatric dentists, GDP, and other specialists were seen to have adopted different pain and infection control strategies for treatment of primary teeth and permanent teeth, respectively.

Table 1: Demographic data for the sample population

	General Practitioner *n* (%)	Pedodontics Specialty *n* (%)	Other Specialty *n* (%)	*P*[a]	Total *n* (%)
Age Group (Years)					
20-30	109 (81.3)	31 (50.8)	35 (43.2)		175 (63.4)
31-40	23 (17.2)	21 (34.4)	41 (50.6)	*P*=0.000*	85 (30.8)
41-50	2 (1.5%)	5 (8.2)	4 (4.9)		11 (4)
>51	0	4 (6.6)	1 (1.2)		5 (1.8)
Gender					
Male	50 (37.3)	19 (31.1)	43 (53.1)	*P*=0.017*	112 (40.6)
Female	84 (62.7)	42 (68.9)	38 (46.9)		164 (59.4)
Type of Practice					
Govt.	59 (44)	29 (47.5)	38 (46.9)	*P*=0.868	126 (45.7)
Private	75 (56)	32 (52.5)	43 (53.1)		150 (54.3)
Year of Practice					
<5 years	112 (83.6)	41 (67.2)	50 (61.7)	*P*=0.001*	203 (73.6)
>5 years	22 (16.4)	20 (32.8)	31 (38.3)		73 (26.4)
Total	134	61	81		276

[a]Chi - Square Test applied, *Significant at 5%

Table 2: Frequency distribution of responses to scenarios with respect to Specialty

Scenarios	General Practitioner					Specialist Pediatric Dentist					Other Specialty Dentist				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Restoration Pry Tooth (85)															
Pre Op-Analgesic	74	21	24	7	8	44	6	9	2	0	49	19	10	2	1
Pre Op-Antibiotic	80	9	31	9	5	45	9	5	1	1	51	14	13	2	1
Local Anaesthesia	43	32	33	10	16	20	18	15	5	3	17	23	24	7	10
Post Op Analgesic	49	31	29	17	8	25	19	10	5	2	35	13	21	7	5
Post Op Antibiotic	73	16	19	14	12	43	9	7	0	2	50	17	9	2	3
Restoration Permanent Tooth (46)															
Pre Op -Analgesic	75	21	24	10	4	43	9	7	2	0	50	17	11	2	1
Pre Op -Antibiotic	80	14	22	12	6	48	7	3	2	1	53	15	10	1	2
Local Anaesthesia	44	31	37	8	14	21	16	19	5	0	22	20	23	6	10
Post Op Analgesic	52	28	31	15	8	26	19	11	3	2	37	20	15	4	5
Post Op Antibiotic	81	16	8	10	9	44	7	7	1	2	54	14	5	2	6
Extraction Primary Tooth (51)															
Pre Op -Analgesic	44	20	29	24	17	32	13	12	1	3	33	15	17	11	5
Pre Op -Antibiotic	33	26	41	20	14	22	12	22	2	3	27	20	22	10	2
Local Anaesthesia	1	2	15	15	108	0	0	5	52	61	0	2	3	64	81
Post Op Analgesic	7	6	22	28	71	2	4	15	10	30	1	7	12	10	51
Post Op Antibiotic	11	17	32	20	54	14	7	25	5	10	9	18	23	11	20
Extraction Permanent Tooth (14)															
Pre op-Analgesic	35	22	37	22	18	31	12	12	3	3	32	16	17	11	5
Pre op-Antibiotic	31	17	48	21	17	25	10	16	5	5	32	18	22	5	4
Local Anaesthesia	2	2	2	7	121	0	0	1	0	60	0	2	1	3	75
Post op Analgesic	4	2	19	23	86	1	2	8	5	45	2	4	9	8	58
Post op Antibiotic	8	13	26	21	66	13	5	18	8	17	9	13	22	12	25
Traumatic Dental Injury to Pry Tooth															
Pre-Analgesic	16	14	32	29	43	10	14	14	12	11	11	14	16	20	20
Pre-Antibiotic	21	20	27	30	36	14	12	16	9	10	11	18	20	13	19
Local Anaesthesia	4	4	19	23	84	1	0	7	10	43	0	1	6	5	55
Post Analgesic	4	2	20	33	75	1	4	8	10	38	1	3	13	16	48
Post Antibiotic	4	2	25	30	73	4	4	14	12	27	3	6	13	22	37
Traumatic Dental Injury to Pmt Tooth															
Pre-Analgesic	15	15	26	26	52	9	6	18	15	13	10	10	22	21	18
Pre-Antibiotic	20	14	26	29	45	11	9	22	7	12	14	11	21	18	17
Local Anaesthesia	1	4	15	22	90	0	0	4	9	48	0	1	5	16	59
Post Analgesic	1	6	22	27	78	1	2	9	11	38	1	3	9	19	49
Post Antibiotic	2	8	16	27	81	4	2	20	9	26	1	9	19	14	38

A- Never, B- Seldom, C- Sometimes, D- Often, E- Always

All three groups used pain and infection control strategies more often in permanent teeth than in primary teeth except the use of LA, which was used with equal frequency in both primary as well as permanent dentition [Table 4].

Table 3: Association Between Specialty & Use Of Pain And Infection Reduction Strategies In Various Clinical Scenarios (Likert Scale Dicotmized)

Scenarios	General Practitioner		Specialist Pedodontist		Other Specialties		Chi-square	P[a]
	Never/ Seldom/ Sometimes *n* (%)	Often/ Always *n* (%)	Never/ Seldom/ Sometimes *n* (%)	Often/ Always *n* (%)	Never/ Seldom/ Sometimes *n* (%)	Often/ Always *n* (%)		
Restoration Primary Tooth (85)								
Pre Op-Analgesic	119 (88.8)	15 (11.2)	59 (96.7)	2 (3.3)	78 (96.3)	3 (3.7)	6.048	0.049*
Pre Op-Antibiotic	120 (89.6)	14 (10.4)	59 (96.7)	2 (3.3)	78 (96.3)	3 (3.7)	5.170	0.075
Local Anaesthesia	108 (80.6)	26 (19.4)	53 (86.9)	8 (13.1)	64 (79)	17 (21)	1.580	0.454
Post Op Analgesic	109 (81.3)	25 (18.7)	54 (88.5)	7 (11.5)	69 (85.2)	12 (14.8)	1.722	0.423
Post Op Antibiotic	108 (80.6)	26 (19.4)	59 (96.7)	2 (3.3)	76 (73.8)	5 (6.2)	13.996	0.001*
Restoration Permanent Tooth (46)								
Pre Op-Analgesic	120 (89.6)	14 (10.4)	59 (96.7)	2 (3.3)	78 (96.3)	3 (3.7)	5.170	0.075
Pre Op-Antibiotic	116 (86.6)	18 (13.4)	58 (95.1)	3 (4.9)	78 (96.3)	3 (3.7)	7.426	0.024*
Local Anaesthesia	112 (83.6)	22 (18.4)	56 (91.8)	5 (8.2)	65 (80.2)	16 (19.8)	3.672	0.159
Post Op Analgesic	111 (82.8)	23 (17.2)	56 (91.8)	5 (8.2)	72 (88.9)	9 (11.1)	3.424	0.181
Post Op Antibiotic	115 (85.19)	19 (14.2)	58 (95.1)	3 (4.9)	73 (90.1)	8 (9.9)	3.828	0.148
Extraction Primary Tooth (51)								
Pre Op-Analgesic	93 (69.4)	41 (30.6)	57 (93.4)	4 (6.6)	65 (80.2)	16 (19.8)	14.43	0.001*
Pre Op-Antibiotic	110 (74.6)	34 (25.4)	56 (91.8)	5 (8.2)	69 (85.2)	12 (14.8)	9.231	0.010*
Local Anaesthesia	11 (8.2)	123 (91.8)	4 (6.6)	57 (93.4)	5 (6.2)	76 (93.8)	0.367	0.832
Post Op Analgesic	35 (26.1)	99 (73.9)	21 (34.4)	40 (65.6)	20 (24.7)	61 (75.3)	1.915	0.384
Post Op Antibiotic	60 (44.8)	74 (55.2)	46 (75.4)	15 (24.6)	50 (61.7)	31 (38.3)	17.272	0.000*
Extraction Permanent Tooth (14)								
Pre Op-Analgesic	94 (70.1)	40 (29.9)	55 (90.2)	6 (9.8)	65 (80.2)	16 (19.8)	10.124	0.006*
Pre Op-Antibiotic	96 (71.6)	38 (28.4)	51 (83.6)	10 (16.4)	72 (88.9)	9 (11.1)	10.031	0.007*
Local Anaesthesia	6 (4.5)	128 (95.5)	1 (1.6)	60 (98.4)	3 (3.7)	78 (96.3)	0.969	0.616
Post Op Analgesic	25 (18.7)	109 (81.3)	11 (18)	50 (82)	15 (18.5)	66 (81.5)	0.011	0.995
Post Op Antibiotic	47 (35.1)	87 (64.9)	36 (59)	25 (41)	44 (54.3)	37 (45.7)	12.83	0.002*
Traumatic Dental Injury to Pry Tooth								
Pre Op-Analgesic	62 (46.3)	72 (53.7)	38 (62.3)	23 (37.7)	41 (50.6)	40 (49.4)	4.319	0.115
Pre Op-Antibiotic	68 (50.7)	66 (49.3)	42 (68.9)	19 (31.1)	49 (60.5)	32 (39.5)	6.018	0.04*
Local Anaesthesia	27 (20.1)	107 (79.9)	8 (13.1)	53 (86.9)	7 (8.6)	74 (91.4)	5.450	0.066
Post Op Analgesic	26 (19.4)	108 (80.6)	13 (21.3)	48 (78.7)	17 (21)	64 (79)	0.129	0.938
Post Op Antibiotic	31 (23.1)	103 (76.9)	22 (36.1)	39 (62.9)	22 (27.2)	59 (72.8)	3.542	0.170
Traumatic Dental Injury to Pmt Tooth								
Pre op-Analgesic	56 (41.8)	78 (58.2)	33 (54.1)	28 (45.9)	42 (51.9)	39 (48.1)	3.432	0.180
Pre op-Antibiotic	60 (44.8)	74 (55.2)	42 (68.9)	19 (31.1)	46 (56.8)	35 (43.2)	10.233	0.006*
Local Anaesthesia	20 (14.9)	114 (85.1)	4 (6.6)	57 (93.4)	6 (7.4)	75 (92.6)	4.448	0.108
Post op Analgesic	29 (21.6)	105 (78.4)	12 (19.7)	49 (80.3)	13 (16)	68 (84)	1.004	0.605
Post op Antibiotic	26 (19.4)	108 (80.6)	26 (42.6)	35 (57.4)	29 (35.8)	52 (64.2)	13.202	0.001*

[a]Chi Square Test applied, *Significant at 5%

The independent variables were dichotomized and backward logistic regression was used for the outcome of pain and infection control strategies. Females were twice more likely to prescribe preop analgesic (OR- 2.3, $P = 0.043$*) and less likely to administer LA (OR- 0.420, $P = 0.03$*) for restoration and management of traumatic dental injury to primary tooth (OR- 0.420, $P = 0.03$*).

Private practitioners were more likely to prescribe preop analgesic for extraction of permanent tooth (OR- 2.4, $P = 0.005$*) as well as primary tooth (OR- 2.5, $P = 0.003$*), postoperative analgesic (OR- 1.94, $P = 0.031$*) and administering LA during management of traumatic dental injury to primary tooth (OR- 2.7, $P = 0.005$).

Specialist dentist were more likely to administer LA during management of traumatic dental injury to a primary tooth (OR- 1.29, $P = 0.033$*) as well as permanent tooth (OR-1.32, $P = 0.04$*) and less likely to prescribe preoperative analgesics during extraction of permanent tooth (OR- 0.712, $P = 0.002$*) as well as primary tooth (OR-0.730, $P = 0.003$*). Practitioner with experience greater than 5 years were less likely to prescribe preoperative analgesics (OR-0.535, $P = 0.049$*) during trauma to 10 year old patient. Private practitioners were more likely to prescribe post op analgesics (OR- 1.831, $P = 0.04$*) during management of traumatic dental injury to permanent tooth.

Discussion

Results of the present study provide a valuable insight regarding the differences in pain and infection control strategies used by GDPs, specialist pediatric dentists, and other specialty dentists. Response rate of present study was 70%. Although there is no well-defined

Table 4: Number of Indian general dental practitioners (GDPs), specialist paediatric dentists (SPDs) and Other Specialist reporting use of pain-reducing strategies Always or Often when treating primary and permanent teeth

Scenarios	General Practitioner			Specialist Pediatric Dentists			Other Specialty Dentists		
	Primary *n* (%)	Permanent *n* (%)	*P*[a]	Primary *n* (%)	Permanent *n* (%)	*P*[a]	Primary *n* (%)	Permanent *n* (%)	*P*[a]
Filling									
LA	26 (19.4)	22 (16.4)	0.53	8 (13.1)	5 (8.9)	0.37	17 (20.9)	16 (24.6)	0.845
Pre-Analgesic	15 (11.1)	14 (10.4)	0.81	2 (3.2)	2 (3.3)	1	3 (3.7)	3 (3.8)	1
Post Analgesic	25 (18.6)	23 (17.1)	0.75	7 (11.4)	5 (8.9)	0.54	12 (14.8)	9 (12.5)	0.48
Pre-Antibiotic	14 (11.29)	18 (13.43)	0.45	2 (3.2)	3 (4.9)	0.87	3 (3.7)	3 (3.7)	1
Post- Antibiotic	26 (19.4)	19 (0.14)	0.25	2 (2.2)	3 (4.9)	0.83	5 (6.17)	8 (9.87)	0.38
Extraction									
Pre-Analgesic	41 (30.5)	40 (29.8)	0.89	4 (6.5)	6 (9.8)	0.50	16 (19.7)	16 (19.7)	1
Post Analgesic	79 (55.2)	109 (81.3)	0.000*	40 (65.5)	50 (81.9)	0.03*	61 (75.3)	66 (81.4)	0.33
Pre-Antibiotic	34 (25.37)	38 (28.35)	0.58	5 (8.19)	51 (83.6)	0.000*	12 (14.8)	9 (11.1)	0.48
Post- Antibiotic	74 (55.22)	87 (64.9)	0.10	15 (24.5)	25 (40.9)	0.053	31 (38.2)	37 (45.6)	0.33
TDI									
Pre-Analgesic	72 (53.7)	78 (58.2)	0.46	23 (37.7)	28 (45.9)	0.35	40 (49.3)	39 (48.1)	0.87
Pre-Antibiotic	66 (49.2)	74 (55.2)	0.32	19 (31.1)	19 (31.1)	1	32 (39.5)	35 (43.2)	0.63
LA	107 (82.9)	114 (85)	0.67	53 (86.8)	57 (93.4)	0.2	74 (91.3)	75 (92.5)	0.77
Post Analgesic	108 (80.5)	105 (78.3)	0.65	48 (78.6)	49 (80.3)	0.84	64 (79)	68 (83.9)	0.41
Post- Antibiotic	103 (76.8)	108 (80.5)	0.62	39 (63.9)	35 (57.3)	0.45	59 (72.8)	52 (64.1)	0.23

[a]Chi-Square test applied, *Significant at 5%

lower limit for an acceptable response rate of a survey, a response rate of less than 60% is considered low.[13] Hence the response rate of present study is acceptable. Similar response rates were found in other studies carried out at different parts of the world.[7,8,14]

Specialist pediatric dentists, as per results obtained from current study were least likely to recommend the use of pre as well as postoperative analgesics and antibiotics. They relied more on judicious use of LA, aseptic techniques, and behavior management techniques for pain and infection control. This can be attributed to the knowledge obtained while undergoing specialization training and experience gained while treating children and adolescents over a period of time. Contrary to this, results obtained from a study of similar nature conducted in Sweden showed that Specialist Pediatric Dentists were found to use preoperative antibiotic and analgesics more often compared to GDPs.[7]

GDPs were observed to use preoperative antibiotic and analgesics more often than their specialist counterparts. It was also observed that use of antibiotics and analgesics was more postoperatively rather than preoperatively. This could be attributed to lack of knowledge and experience in treating children. Results of the present study raise serious concerns regarding injudicious use of antibiotics and analgesics in children and adolescents, as the scientific literature supporting the use of preoperative analgesics is scarce. There is no scientific evidence that supports the fact that use of preoperative analgesics has any additional beneficial effect.[15,16] In order to achieve good postoperative pain and infection control, operator needs to focus on all phases of treatment, including pre and perioperative phase of treatment.[17] Moreover, preoperative antibiotics are indicated only in children with compromised immunity and certain conditions like high risk cardiac conditions, infective endocarditis prophylaxis.[18-21] Inadvertent and extravagant use of antibiotics not just leads to substantially added economic burden but also contributes to antimicrobial resistance (AMR).[22,23]

GDPs were observed to use LA less frequently than their specialist counterparts. The fact that children fear injections and stress induced while treating children can be the reasons for under use of LA among GDP. One more assumption is that there is less pain while treating primary teeth since the resorption has already started, although there is no scientific evidence supporting the fact, this may be another reason why GDPs do not use LA so often. Similar results were found in the studies conducted by Wondumi & Dahlof, Berlin *et al.*, and Rasmussen *et al.*[7,8,10]

One more inference derived from the present study was that preoperative antibiotics and analgesics, whenever used, were used half an hour prior to commencement of treatment. When pharmacological properties of most commonly used analgesics and antibiotics are considered, it was observed that maximum plasma concentrations of Amoxicillin and Paracetamol were achieved in 1–2 h and 30 min. to 1 h, respectively, while their half-lives were 1 h and 2.5 h, respectively.[24,25] If not used correctly as per the pharmacological properties, desired outcomes cannot be achieved rather the drugs would produce just a placebo like effect. Using an active drug as placebo is associated with many side effects like hepatotoxicity, renal dysfunction, etc.[26-28]

Private practitioners, as per results of present study, relied on use of pre and postoperative analgesics and antibiotics as well as LA while treating children and adolescents. Their overcautious nature can be attributed to the fact that behavior management problem can better be addressed at hospital setting rather than at a private clinic. Moreover, with growing experience, dependence on use of preoperative analgesics and antibiotics was seen to be

diminishing. This could be because of increase in knowledge and experience with due course of time.

As far as gender is concerned, it was observed that females were more likely to prescribe preoperative analgesics and less likely to use LA in certain case scenarios. This can be owed to empathic nature of the female gender.[10]

Pain and infection control is not just limited to reduction of pain and infection but also prevention of the same. Judicious use of local and topical anesthesia, aseptic techniques, sterilization of operatory and instruments along with behavior management techniques can prove to be beneficial in this regard. Conscious sedation with nitrous oxide and general anesthesia can provide a great deal of relief from pain rather than opting for analgesics. Inadequate knowledge regarding the use of pre-operative as well as postoperative analgesics and antibiotics and their injudicious use is a serious problem that should not be over looked and needs to be addressed.

Whatever treatment in children needs to be carried out, it should be carried out while adhering to the set guidelines. It is always advisable to refer a child to Specialist Pediatric dentist if any GDP or other speciality dentist is unable to perform treatment without use of analgesics and antibiotics. This will contribute toward countering AMR rather than encouraging it in addition to reducing unnecessary economic burden. Moreover, parents should be made aware of importance of speciality practice and the growing concern to curb AMR.

This calls for formulation of guidelines by local, national, and international bodies that need a widespread publicity and acceptance. CDE programs, webinars, and training programs can prove to be beneficial. The importance of painless dental treatment, behavior management, and sterilization of operatory and aseptic techniques need to be stressed upon regardless whether we are treating a primary tooth or a permanent tooth. Present study had certain limitation like small sample size along with self-reporting nature of questionnaire that makes responses subject to response bias. Further studies of similar nature on a larger sample can give us a broader perspective in this regard.

Conclusion

Within the limitations of present study we can conclude:

1. There is a gross overuse of antibiotics and analgesics and under use of LA.
2. Emphasis needs to be laid on judicious use of LA, behavior management techniques, and sterilization while treating children which are far safer options rather than using analgesics and antibiotics across primary healthcare settings.
3. Speciality practice and referral to specialist should be encouraged whenever available.
4. Every step should be taken to counter AMR rather than encouraging it.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed

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Conflicts of interest

There are no conflicts of interest.

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