The need and reasons for referrals to specialists among Lithuanian general dentists

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Key words: *reasons for dental referral; endodontic treatment.*

Summary. *Objective. To analyze the need for referral to a specialist and to identify the reasons of referrals among Lithuanian general dental practitioners.*

Material and methods. Questionnaires were sent to all 2879 Lithuanian dental practitioners registered on the Lithuanian Dental Chamber license registry. The questionnaire was made with multiple-choice answers. Respondents were asked to choose only one category of answer that best fitted their clinical attitude. Questions included in the questionnaire concerned general and specific information regarding the need and main reasons for endodontic referral.

Results. Of the 2879 questionnaires mailed, 1532 questionnaires containing useful information were returned. The response rate was 53.2%. Of the 1532 respondents, 1431 were general dental practitioners. Majority (72.1%) of the respondents performed complicated root canal treatment by themselves. Almost half (49.6%) of them would like to refer patients to an endodontist. Two of the reasons, which restricted their decision, were the shortage of endodontists and high cost of the procedures in the specialized clinics. Approximately 19% of the respondents referred patients to an endodontist. The main reasons for referral were fractured instruments (86.6%), dental trauma (83.6%), difficulties in diagnostics (79%) followed by persistent symptoms (78.1%).

Conclusion. The findings of the present study suggest that the need for referral of patients to an endodontist among Lithuanian dental practitioners exists. The main reasons for referrals were complications of endodontic treatment, traumatic injuries, difficulties in diagnostic procedures, and persistent symptoms.

Introduction

Scientific evidence shows that there is a substantial need for root canal treatment in the populations (1–5). General dental practitioners most probably provide the great majority of root canal treatments all over the world. Several cross-sectional studies within the population in different countries including Lithuania have showed not only a high prevalence of apical periodontitis associated with root filled teeth (24–61%), but also a high rate of inadequate root fillings (38–81%) (1–5). These studies have demonstrated that the success rate of root canal treatment in general dental practice achieved only 60–75%, while the success rate in the studies where endodontic therapy was performed in specialist clinics or dental schools reached up to 96% (6, 7).

The lack of information about the frequency and reasons for referral to endodontic specialists exists. Many factors can potentially influence the clinician's decision to undertake treatment or to refer the patient to the specialist (8–10). It is evident that decision-making depends on both patient-related and dentist-related factors, such as technical mishaps during endodontic treatment, different clinical experience, confidence, training, ability to explain clearly clinical situation, specialty background, working environment, etc. (10, 11). Several studies have showed wide inter-individual discrepancies among general dental practitioners in decision-making (12, 13). Such variations could be attributed not only to the complexity of root canal treatment procedures, but also to the variety of treatment alternatives based on the different treatment philosophies, which may have an apparent impact on the choice of therapy (13, 14). It is obvious that majority of general dental practitioners make decision under conditions of at least of some uncertainty, and in several cases, it will be the need to refer a patient to a specialist clinic or dentist with advanced knowledge. In order to improve the quality of endodontic therapy performed by general dentists, it is important

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to clarify the need and main reasons of referrals to specialists.

The objective of this study was to analyze the need for referral to a specialist and to identify the reasons of referrals among Lithuanian general dental practitioners.

Material and methods

Questionnaires were sent to all 2879 Lithuanian dental practitioners. A list was acquired from the database of the Lithuanian Dental Chamber license registry. The questionnaire was made up of 58 questions with multiple-choice answers and was sent with an explanatory covering letter with a stamped, addressed return envelope. A list of possible responses to each question was given, and respondents were asked to choose the answer that best fitted their clinical attitude and to indicate only one category. The questionnaire was fully piloted and refined for clarity and scope before being issued.

Questions included in the present questionnaire concerned general information and specific information regarding the need and reasons of endodontic referrals and the specialist to whom a patient was referred.

Only answers of respondents who had a license of a general dental practitioner at the time of the study were analyzed.

For more detailed comparison of the data, the study sample was divided, according to the duration of professional activity, into the following groups: group A (up to 9 years in practice), group B (10–19 years), group C (20–29 years), and group D (more than 30 years). In addition, the respondents were compared by geographic location of working place (rural or urban).

Substantial transformations in the undergraduate dental curricula at two Lithuanian universities, providing dental education, occurred in 1996. The first students from the new curricula graduated in 2000. To compare the two Lithuanian dental schools, respondents who had graduated from their dental school since 2000 were grouped according to the university from which they received their diploma, namely into VU group (Vilnius University) and KUM group (Kaunas University of Medicine). Comparison of these data may reveal existing differences in undergraduate endodontic study programs between these two universities and lack of knowledge, which is needed to be expanded, among graduates.

All returned forms were coded by a single operator, and the data were checked and entered twice in a personal computer. Blank or multiple answers were all treated as missing values; only single unequivocal responses were included in calculating percentages. Data were analyzed with the statistical software SPSS 16. The chi-square test was used to compare proportions among groups, and the significance threshold for all tests was set at $P<0.05$.

Results

Of the 2879 questionnaires mailed, 1532 questionnaires containing useful information were returned, with a response rate of 53.2%. Twenty-nine were returned unopened by the post office marked "addressee unknown," and 32 questionnaires were excluded from the study because the responses were incomplete. Of the 1532 questionnaires, 1431 questionnaires filled out by respondents having a license of general dental practitioner were included into analysis. The mean age of the respondents was 45 years with a range of 23–75 years. There were 84.6% of females. The respondents by years in practice were distributed as follows: 316 (22%) in the group A, 372 (26%) in the group B, 324 (23%) in the group C, and 419 (29%) in the group D. A total of 956 dentists who practised in urban and 576 dentists who practised in rural areas responded to the questionnaire, while a total of 802 urban and 516 rural dentists did not respond. The nonresponse analysis (chi-square test) revealed no statistically significant differences ($P=0.417$) between responders and nonresponders regarding geographic location of working place. This means that with some degree of caution, the present sample can be considered representative of Lithuanian dentist population. At the time of the study, there were 94 VU graduates and 300 KUM graduates who had graduated since 2000.

To the question whether the respondents performed root canal treatment in complicated cases often or routinely by themselves, 72.1% responded positively. Almost half (49.6%) of them would like to refer patients to an endodontist. The shortage of endodontists not only in rural, but also in urban area, and high cost of procedures in the specialized clinics were two main reasons, which restricted their decision. Findings showed that with an increase in duration of professional activity, the percentage of respondents who performed endodontic treatment procedures by themselves increased (62.3% of the respondents in the group A vs. 77.5% in the group D; $P<0.05$).

Approximately 19% of the respondents always or often referred patients to an endodontist, whilst other 10% referred to an oral surgeon. Only 6.9% of the respondents always or often referred patients to more experienced colleagues (Table 1). Respondents from

Table 1. Expert to whom a patient is referred

Specialist	Always	Often	Sometimes	Rarely	Never
Endodontist	3.5	15.1	42.6	30.8	8.0
Oral surgeon	1.5	8.5	40.4	35.4	14.3
Colleague with experience	0.6	6.3	27.6	31.3	34.2

Data are presented as percentages of total number of respondents.

Table 2. Very important and important reasons for referrals to specialists according to respondents' professional experience

Problem	Respondents' group (years in practice)				Total
	A (<9) n=316	B (10–19) n=372	C (20–29) n=324	D (30>) n=419	
Difficult diagnostics	73.4*	77.5	82.3	83.1*	79.0
Persistent symptoms	83.3*	79.8	79.5	69.9*	78.1
Complicated tooth anatomy	62.1	64.0	72.1*	61.5*	64.7
Calcified root canals	69.5	67.9	72.8	68.7	69.6
Fractured instruments in canals	88.7	87.9	85.8	83.7	86.6
Presence of a post and core	70.2	68.3	72.8	69.5	70.1
Presence of a metal ceramics crown	28.7*	41.3*	40.6*	55.7*	41.7
Retreatment procedure	43.2*	47.4	50.9*	65.6*	51.8
Perforation	71.3*	65.9	58.0*	67.3	67.3
Resorption of root	56.8	61.6	61.3	57.2	59.2
Apexification procedure	48.1*	53.6	49.8	57.1*	52.3
Dental trauma	73.6*	84.7	85.4	90.0*	83.6
Size of periapical lesion	34.7*	48.0*	50.0*	50.3*	45.8
Difficult communication with patient	37.0*	46.0*	35.5*	39.0*	39.6

Data are given as percentage. *P<0.05 between the groups.

the group A (up to 9 years in practice) more often referred patients to endodontists than respondents from the group D (more than 30 years) (30.1% vs. 11.2%; P<0.05).

Nearly half of the respondents (48.2%) from rural areas and 33.1% of respondents from urban areas never referred patients to an endodontist (P<0.05).

Comparison of the results between the groups of respondents who had graduated KUM and VU showed that more often KUM graduates performed endodontic treatment by themselves than VU graduates (70.7% vs. 38.3%; P<0.05). Approximately 40% of the respondents who had graduated VU referred patients to an endodontist while only 25% from KUM did so (P<0.05).

Table 2 summarizes the most popular reasons for referral to an endodontist among Lithuanian dental practitioners. The fractured instruments (86.6%), dental trauma (83.6%), problems in diagnostics (79%), and persistent symptoms (78.1%) were the reasons most frequently considered important and very important in making a decision to refer, followed by the presence of a post, calcified canal, and perforation (Table 2).

Respondents who had graduated KUM more often in comparison with VU graduates referred patients to the specialists due to the following reasons: presence of a crown or bridge and size of periapical lesion. Perforation was considered a reason for referral to an endodontist more often among VU graduates than KUM graduates (Table 3).

Table 3. Very important and important reasons for referrals to specialists among graduates of Vilnius University (VU) and Kaunas University of Medicine (KUM) (since year 1996)

Problem	University		Total
	VU	KUM	
Difficult diagnostics	73.1	74.1	74.2
Persistent symptoms	84.9	81.2	82.4
Complicated anatomy	67.0	58.9	61.2
Calcified root canals	78.5	65.8	68.0
Fractured instruments in canals	93.5	88.4	89.5
Presence of a post and core	77.4	67.9	70.7
Presence of a metal ceramics crown	20.4*	32.6*	29.5
Retreatment procedure	35.5	43.0	41.8
Perforation	80.6*	66.0*	70.0
Resorption of root	54.8	57.4	57.2
Apexification procedure	51.6	45.4	47.4
Dental trauma	72.0	75.7	75.2
Size of periapical lesion	11.8*	42.8*	36.1
Difficult communication with patient	34.4	39.7	39.4

Data are given as percentage. *P<0.05 between the groups.

Discussion

The decision to perform endodontic treatment or refer a patient essentially involves a personal assessment whether a dentist can handle or not the situation by himself/herself. Decision-making is related to some degree of uncertainty. The results of the present study highlighted the reasons that contributed to the process of making referral decision among Lithuanian general dental practitioners. This survey extended the existing information about the knowledge in endodontics among practicing dentists and revealed the weakest parts of it. It is obvious that not only the lack of knowledge in the specific fields of endodontics but also the clinical experience of a practicing dentist may influence decision-making and quality of endodontic therapy in the Lithuanian population.

Caplan et al. in their study showed that general practitioners with more than 10-year experience in dentistry were more likely to refer patients than younger colleagues (15). The results of the present study showed that among the practitioners who referred patients to an endodontist, 30.1% of the respondents were from the group A (up to 9 years in practice), 21.1% from the group B (10–19 years), 13.9% from the group C (20–29 years), and 11.2% from the group D (more than 30 years). Such findings could be related to the fact that the respondents from the group A mainly work in big cities, such as Vilnius and Kaunas, where the lack of endodontists is not so evident than in the other areas of the country. Almost half of the respondents from the groups B, C, and D reported the shortage of specialists as one of the main reasons, which restricted their decision to refer patients to specialist clinics. Due to the lack of the specialists, the influx of patients to a specialist clinic is regulated with long waiting lists and this often interferes with the duration of planned treatment.

Several studies have investigated the reasons of referral to specialists for endodontic therapy among general dental practitioners. The most common reasons were difficulties in diagnostics, management of pain, mishaps during root canal treatment and retreatment procedures (16–18). Harty showed that 20% of the patients in England were referred for retreatment procedure (16). The results of other study by Saunders et al. showed that 76% of the respondents considered retreatment as the main reason for referral of patients to an endodontist (18). In the present study, the percentage of respondents referring patients to endodontists due to the need of retreatment procedure accounted for 51.8%. A survey performed in Australia revealed that the main reasons for referral were management of pain of (24%) followed by calcified/blocked root canals (18%) and endodontic retreatment (15%) (17). In the present study, fractured instruments (86.6%), dental trauma (83.6%), problems in diagnostics (79%), and persistent symptoms (78.1%) were the reasons most frequently considered to refer. Such discrepancies of results may be due to differences in treatment philosophies among universities, existing undergraduate curricula, and implementation of new technologies in routine dental practice. The existing differences among endodontists and general dental practitioners were evident in Caplan et al. study where they compared the indications for referral of general practitioners with those of endodontists (15). For example, the presence of radiographically calcified root canal was an absolute reason for referral in the group of the endodontists (100%), whereas only 61% of the general practitioners thought so (15). In the present study, 69.6% of the respondents considered calcified root canal as the reason for referral.

The surveys carried out among general dental practitioners in different countries showed that the decision to refer might be influenced by certain specific factors in every country, including socioeconomic status, discrepancies in undergraduate programs, years of professional activity, environment in which a person works, etc.

The epidemiological study from Lithuania showed that apical pathology constitutes a considerable dental health problem among Lithuanian population. The results demonstrated that 70% of the individuals presented with apical periodontitis. In total, 82% of endodontically treated teeth were associated with periapical pathology (1). These findings indicate that the quality of endodontic treatment performed by general dental practitioners does not ensure the effective treatment of periapical disease. The need for improvement of technical quality of root canal treatment in Lithuanian general dental practice is evident. However, referral process was not a common practice among Lithuanian general dental practitioners. Existing problems and uneven distribution of specialists in Lithuania would be diminished only if educational strategies were aimed at the implementation of generally accepted clinical guidelines for endodontic therapy in daily dental practice.

Conclusions

The findings of the present study suggest that referral of difficult cases to an endodontist was not common practice among Lithuanian dental practitioners but a need for referrals to a specialist exists. Complications of endodontic treatment, traumatic injuries, difficulties in diagnostic procedures and persistent symptoms were the main reasons for referrals.

Lietuvos gydytojų odontologų reikmės ir priežastys siųsti pacientus gydyti odontologams specialistams

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Raktažodžiai: siuntimo gydyti priežastys, endodontinis gydymas.

Santrauka. *Tyrimo tikslas.* Išnagrinėti pacientų siuntimo pas odontologus specialistus priežastis bei nustatyti tokių siuntimų reikmes.

Tyrimo medžiaga ir metodai. Visiems 2879 Lietuvoje dirbantiems gydytojams odontologams, registruotiems Lietuvos odontologų rūmų registre, išsiųsti klausimynai ir aiškinamasis raštas. Tyrime buvo nagrinėjamos tos anketos, kurias užpildė asmenys, turintys tik bendrosios praktikos gydytojo odontologo licenciją. Tyrimo metu buvo nagrinėjami bendrieji klausimai apie respondento amžių, lytį, darbo stažą ir specialieji klausimai apie dažnį ir priežastis, dėl kurių pacientai įtarus endodontinės kilmės patologiją, siunčiami konsultuoti odontologams specialistams.

Rezultatai. Iš 2879 išsiųstų anketų, grąžintos 1532. Tyrimo atsakas – 53,2 proc. Iš 1532 anketų atrinkta 1431, kurias užpildė gydytojai odontologai, turintys bendrosios praktikos gydytojo odontologo licenciją. Iš visų atsakiusiųjų 72,1 proc. niekada nesiunčia paciento atlikti sudėtingų endodontinio gydymo procedūrų endodontologui ar didesnę patirtį turinčiam kolegai. Beveik pusė (49,6 proc.) jų norėtų siųsti pacientą endodontologui, bet nesiunčia dėl dviejų pagrindinių priežasčių: specialistų stygiaus bei aukštų gydymo įkainių. Konsultuoti endodontologui siunčia 19 proc. atsakiusiųjų. Dažniausios siuntimo endodontologui priežastys: lūžę endodontiniai instrumentai (86,6 proc.), dantų traumos (83,6 proc.), sudėtinga diagnostika (79 proc.) bei išliekantys simptomai (78,1 proc.).

Išvados. Tyrimas parodė, kad daugumą, net ir sudėtingų endodontinio gydymo procedūrų, dažniausiai atlieka bendrosios praktikos gydytojai odontologai, bet siuntimo gydytojams odontologams specialistams reikmės Lietuvoje egzistuoja. Dažniausios siuntimo endodontologui priežastys buvo endodontinio gydymo komplikacijos, sudėtinga diagnostika dantų trauminiai pažeidimai ir ilgai išliekantys klinikiniai simptomai.

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Received 24 April 2009, accepted 6 September 2010
Straipsnis gautas 2009 04 24, priimtas 2010 09 06