ASPECTS REGARDING THE HYGIENIC-SANITARY CONDITIONS AT THE LEVEL OF CERTAIN DENTAL MEDICINE CABINETS IN IASI COUNTY

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ASPECTS REGARDING THE HYGIENIC-SANITARY CONDITIONS AT THE LEVEL OF CERTAIN DENTAL MEDICINE CABINETS IN IASI COUNTY (Abstract)

Aim: This baseline study aims to find out the evaluation of hygienic-sanitary conditions at the level of dental medicine cabinets through the verification of certain hygienic aspects.

Material and Methods: The study conducted consists in monitoring the hygienic/sanitary conditions at the level of 68 dental medicine cabinets (40 private cabinets and 28 school/university dental cabinets in Iasi county), using sheets for the assessment of the hygienic/sanitary conditions adapted from the control sheets of existing dental medicine cabinets at the level of DSP (Public Health Department) Iasi. Results and discussion: The sheets for the assessment of the hygienic/sanitary conditions were evaluated by a specialized team and the results were illustrated in the specific charts. At the level of all the dental cabinets the study revealed non-conformities regarding the means to carry out cleaning, disinfection operations, including the management of perilous waste, the control of medical personnel. Conclusions: An optimization of the hygienic-sanitary conditions at the level of dental medicine cabinets is still necessary, through participation to the activity of personnel training, who is directly involved in dental medical assistance. Keywords: HYGIENIC-SANITARY CONDITIONS, DENTAL MEDICINE CABINETS, ASSESSMENT

The evaluation of hygienic-sanitary conditions at the level of dental medicine cabinets through the verification of certain hygienic aspects, as well as of the environment’s parameters, with the identification of deficiencies and the implementation of some measures to fix them is an objective of priority in view of ensuring a quality dental assistance by means of removing bacterial, viral and mycotic infections as well as by assessing the epidemiologic risk (1, 2, 3).

MATERIAL AND METHODS
The study conducted consists in monitoring the hygienic/sanitary conditions at the level of 68 dental medicine cabinets (40 private cabinets, 20 from the urban environment and 10 from the rural environment) and 28 school/university dental cabinets in Iasi county, using sheets for the assessment of the hygienic/sanitary conditions adapted from the control sheets of existing dental medicine cabinets at the level of DSP (Public Health Department) Iasi (4, 5, 6, 7).

The following aspects were monitored:
- Functional structure of cabinets;
- Their location;
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- Access;
- Existence of functional circuits and compliance with them;
- Washable surfaces;
- Supply with drinkable water;
- Existence of sinks for cleaning instruments and for the hygiene of hands;
- Connection to the sewage system;
- Natural and artificial lighting;
- Status of sanitary groups;
- Thermal microclimate;
- Manner of sanitary materials’ sterilization;
- Compliance with norms regarding the handling operations of used instruments;
- Existence of cleaning materials;
- Existence of disinfectant and antiseptic substances approved by the MS (Ministry of Health);
- The way decontaminants are used and their existence in stock;
- The situation of medical and auxiliary personnel;
- The management of dangerous waste according to Order 219/2002;
- Cabinets’ facilities.

RESULTS AND DISCUSSION

Out of the 68 dental cabinets under investigation, a number of 40 are private, the rest being school/university dental cabinets (fig. 1).

Out of the 40 cabinets of private dental medicine, 30 (75%) are from the urban environment, while 10 (25%) from the rural one (fig. 2).

The number of rooms varies between 6 and 8 rooms, including the dental cabinet as such, an office, a sterilization room, dressing room, waiting room, temporary storage room for dangerous waste, 1-2 washrooms. The surface of the dental cabinet itself varies from 12 to 22 square meters.

At a number of 49 cabinets there is no sterilization room, the sterilization being conducted at the level of the cabinet itself.

Out of the 68 dental cabinets, 19 operated at the ground floor of blocks of flats, 5 in houses, 16 with commercial venues whose construction was destined to medical activities and the 28 school/university den-
tal cabinets operated inside the academic buildings (fig. 3).

**Fig. 3.** Repartition or distribution of dental cabinets – depending on the location

**Access** to the dental practice was identified as follows:

- Separated from that of inhabitants at a number of 60 cabinets (28 school/university cabinets and 32 private dental cabinets);
- Common with that of the inhabitants at 8 private dental cabinets (blocks of flats, living houses) (fig. 4).

**Fig. 4.** Repartition or distribution of dental cabinets – depending on the access

The dental cabinets under investigation had proper functional circuits, but at a number of 10 private dental cabinets these circuits were not observed, the functional circuits being modified due to the installation of new equipment in those particular cabinets.

All cabinets under investigation had washable surfaces (floors), with differences related only to the materials used:

- Out of the 28 school/university cabinets under investigation, 21 (75%) had mosaic floor and 7 (25%) floor tiles.
- At the private dental cabinets under investigation a number of 13 cabinets had mosaic floor, 20 floor tiles and 7 heavy duty traffic linoleum (tarkett) and epoxy resin.

In rural environment there are mostly mosaic surfaces (dental cabinets in old buildings) – 7 cabinets, only 3 cabinets having tile floors (fig. 5).

**Fig. 5.** Repartition or distribution of dental cabinets – depending on the surface/form of organization

The 58 dental cabinets in the urban environment (28 school/university and 30 private) are connected to the central distribution network of **potable water**, cold water being delivered on a permanent basis.

In the rural environment, out of the 10 cabinets under investigation, 5 were connected to the central water network while for the other 5 cabinets potable water supply was ensured through individual installations.

A cabinet in the rural environment connected to the centralized network had no
current water at the moment of the investigation due to some construction works, the cabinet having no supplies of potable water at the moment of the control (fig. 6).

Fig. 6. Repartition of dental cabinets – depending on the potable water supply

All dental cabinets investigated has a supply of hot water, its existence being an essential condition for compliance with the hygienic-sanitary conditions at the level of the cabinets in view of a good performance of their activity.

Thus, out of the 40 private cabinets, 19 cabinets were connected to the city’s centralized network of hot water and 21 had individual installations (thermal units and electric boilers).

Out of the 28 school/university dental cabinets, 15 were connected to the centralized network of hot water while for the rest hot water was supplied through individual installations (thermal units, electric boilers, instant boilers) (fig. 7).

In the rural environment, the 10 cabinets had mostly own installations (electric boilers, thermal units).

In all 68 dental cabinets under investigation there are sinks with separate destination: for handling the instruments and for the hygiene of the personnel’s hands.

Fig. 7. Repartition of dental cabinets – depending on the means of producing hot water

There is a connection to the city’s sewage system in view of evacuating residual waste for all cabinets (school/university and private cabinets) in the urban environment. The evacuation of residual waste for the 10 cabinets in the rural environment is conducted by means of septic tanks.

The existence of washrooms for the medical staff separate from the patients’ occurs mainly in the case of dental cabinets destined by construction to medical activities and in the case of school/university dental cabinets, where there are several sanitary groups.

In case of 18 private cabinets in the urban environment there is no possibility to build a second sanitary unit as the cabinets have been transformed from apartments to medical cabinets.

In the rural environment, 5 private cabinets have two sanitary groups, namely for the medical staff and for the patients.

A natural and artificial lighting is ensured in all dental cabinets in optimum conditions.

The thermal microclimate at the level of the 68 cabinets is ensured as follows: 19 dental cabinets were connected to the city’s
heating network, 21 had individual installations (thermal units, stoves in the rural environment), while out of the 28 school/university dental cabinets 15 were connected to the centralized heating network and the rest of 13 had individual installations (thermal units) (fig. 8).

**Fig. 8** Repartition of dental cabinets – depending on the means of accomplishing the thermal climate

A number of 42 dental cabinets investigated (35 of the private cabinets and 5 of the school/university cabinets, as well as 2 out of the rural environment) were endowed with air-conditioning systems in view of ensuring thermal comfort for the hot season.

With regard to the sterilization of sanitary materials, from the 68 cabinets investigated, for a number of 19 cabinets sterilization was carried out in a specially designed space – the sterilization room, while for the rest sterilization was carried out at the level of the cabinet itself. In all cases, the sterile material was not mixed up with the non-sterile one, there being no contamination danger.

All cabinets had hot air sterilizing units (Poupinel type), but only 16 had sterilizing units with vapors under pressure (autoclave). In all cases, the equipment used in view of sterilizing instruments and soft materials were authorized and approved by the regulating agencies.

For a number of 30 dental cabinets under investigation, there was no technical control conducted for the sterilizing units by specialized companies.

With regard to the correct tallying of the sterilization procedures as well as the use of self-control tests, for a number of 10 dental cabinets there were found deficiencies concerning: the proper filing of procedures by failure to cover all boxes of the Sterilization Record Book, knowledge of the sterilization technique, proper marking of self-control test kits, insufficient supplies as well as invalid expiry date for the tests – a deficiency found at one dental cabinet.

At a number of 5 cabinets, there were found deficiencies regarding the storage and labeling of the sterilized kits.

Handling instruments in view of sterilization is carried out properly at the 40 private cabinets, except for the 28 school/university cabinets, which use the same solution (detergent/disinfectant) for the two stages of handling the instruments, there being no disinfectant for stage 2.

With regard to the cleaning and disinfection materials used at the level of the cabinets, there are sufficient quantities in stock for a number of 50 cabinets, while for the rest of the cabinets (18 school/university cabinets) there was an absence of a proper supply of detergent-disinfectant, as well as of cleaning materials. At 8 dental cabinets (private and school/university) there was an improper storage of cleaning and disinfection materials.
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The use of decontaminants is conducted with the observance of the instructions of use, at the concentrations at times specified by the producer at a number of 55 dental cabinets out of the 68 cabinets investigated, while at a number of 10 school/university cabinets and 3 private cabinets the decontaminants were used improperly.

The number of doctors who perform their activity at the level of dental cabinets varies from 1 to 6, depending on the dental units inside the cabinets.

A peculiar situation is the present of auxiliary sanitary personnel (nurses); out of the 40 private dental cabinets, 29 were operating without a nurse and at the level school dental cabinets 5 were operating without nurses.

With regard to the personnel’s medical exams, we found out that the provisions of the Emergency Ordinance 355/2007 regarding the surveillance of the health condition of the personnel were not complied with entirely, out of the 68 dental cabinets 10 failed to show medical exams according to the technical norms of Ministry of Health (8).

As a rule, the protection equipment is used in all cabinets but most of the times it is incomplete (absence of goggles and mask). The single-use gloves are used by doctors in 90% of the cases in the cabinets under investigation. The medical personnel were found to be vaccinated for B hepatitis.

Another problem encountered at the level of school/university cabinets is the high number of pupils/students per doctor, dental assistance being granted by a single doctor to a large number of students.

A special issue which arises in dental practice is related to the management of solid waste, in agreement with the Order of the Minister of Health no. 219/2002, especially of perilous waste resulted from the medical practice (9,10).

At the level of the 28 school/university dental cabinets and at a number of 30 private cabinets, there are no temporary storage facilities for perilous waste functionally separate from the rest of the construction, in the rest of the cases there being spaces inside constructions.

Primary recollection of waste with septic potential is carried out separately from sewage waste in all cases, but at a number of 10 private dental cabinets and at a number of 11 school/university cabinets the cutting/piercing waste was collected in carton boxes indiscriminately with septic waste.

The recipients - the bags used – are identified differently (yellow with the icon “Biologic Hazard” for perilous waste and black for domestic garbage). At a number of 10 cabinets it was assessed that the bins were not washed and disinfected every time they were emptied.

All private dental cabinets investigates have entered contracts with a specialized authorized company for the transportation and elimination of hazardous waste. The contract wasn’t renewed in the case of 5 school/university dental cabinets.

At a number of 10 school/university dental cabinets, as well as at the level of the dental cabinets in the rural environment the schedule for the collection of perilous waste is not observed, the collection being carried out every two-three days or even more, in breach of the provisions of the Order of the Minister of Health no. 219/2002, due to the fact that contracts for school/university dental cabinets were not renewed and, for the rural environment, the motivation of companies being that, given
the small operational volume of medical waste the collection is not economically justified.

With regard to the cabinet facilities, it was assessed that there is proper **furniture, instruments and medical equipment** at the level of the private dental cabinets while for the 28 school/university dental cabinets a number of 5 had improper worn-out furniture, instruments and equipment.

**CONCLUSIONS**

At the level of school/university dental cabinets the study assessed deficiencies regarding:

- The supply with cleaning and disinfectant substances, as well as in their proper use;
- The use of the same solution (detergent-disinfectant) for the two stages of instrument handling, stage two disinfectant being absent;
- Management of perilous waste (improper collection, the waste being stored at the level of the cabinet for long intervals, sometimes for weeks, due to insufficient funds which prevent the conclusion of a contract with a specialized waste management company;
- The absence of temporary storage locations of perilous waste;
- Endowment with proper furniture, instruments and medical equipment;
- Absence of auxiliary sanitary personnel there being cabinets functioning without a medical nurse;
- The existence of a large number of patients (pupils/students) for a single doctor;
- The personnel’s periodic medical exams and the proper use of the protection equipment.

At the level of private dental cabinets the study revealed nonconformities regarding:

- Compliance with functional circuits due to the installation of new equipment;
- Non-familiarization with the proper way to handle instruments in view of sterilization;
- Deficiencies regarding the sterilization process (non-familiarization with the sterilization technique, proper recording of sterilization, non-marking of self-control kits, failure to conduct a technical control of the sterilization equipment);
- Deficiencies regarding the storage and collection of perilous waste resulted from the medical activity (failure to observe the schedule of waste collection by the authorized companies, especially in the rural environment);
- The study assessed no deficiencies regarding the supply with cleaning and disinfectant substances as well as their proper use.

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GINGIVAL EVALUATION IN CHILDREN WITH CONGENITAL CARDIOVASCULAR DISEASES

Children with congenital cardiovascular diseases who suffer from dental diseases present an increased risk of infective endocarditis. Oral inflammatory diseases may also increase the severity of their cardiovascular condition. The purpose of a study realized by a group of american researchers was to evaluate the gingival status of children with congenital cardiovascular diseases in comparison to healthy children. In the study were included 50 children, aged between 7 and 13 year old. The test group comprised 25 children with congenital cardiovascular diseases subdivided into 3 groups: the first group - unrepaired ventricular septal defect; the second group - aortic valve stenosis; the third group - coarctation of the aorta. The control group consisted of 25 healthy age- and gender-matched children. Plaque, calculus, gingivitis and recession were measured on 12 teeth, six sites per tooth. The results showed that children with congenital cardiovascular diseases had significantly more plaque (P<.001), calculus (P<.001), gingivitis (P<.001) and recession (P>.02) than control group. Among the congenital cardiovascular diseases groups, no statistically significant differences were found for plaque, gingivitis or recession. The conclusions of the study showed that children with congenital cardiovascular diseases had a higher prevalence of periodontal disease, evidenced by gingivitis, plaque, calculus, and recession. These children should be evaluated periodontally and their oral health monitored on a 3-month basis to prevent disease development, benefit cardiovascular condition, prevent endocarditis and to improve quality and longevity of life. (Nosrati E, Eckert GJ, Kowolik MJ et al. Gingival evaluation of the pediatric cardiac patient. Pediatr Dent. 2013; 35 (5): 456-462)

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