STATISTICAL ANALYSIS CONCERNING THE RESPONSIBILITY OF PREVENTING THE RISK OF INFECTION BY DECONTAMINATING DENTAL IMPRESSIONS IN DENTAL TECHNOLOGY

LORELAI GEORGETA SFARGHIU[1], SORIN POPȘOR[2], MIHAI BURLIBAȘA[3], CLAUDIA-CAMELIA BURCEA[4], ANCA TEMELCEA[5], TRAIAN BODNAR[6], ION ALEXANDRU POPOVICI[7], DANA CRISTINA BODNAR[8]

[1]PhD Candidate, University of Medicine and Pharmacy Tîrgu-Mureș, SC DENTALMED COM SRL Brașov, [2]University of Medicine and Pharmacy Tîrgu-Mureș, [3,4,5,6,7,8]"Carol Davila" University of Medicine and Pharmacy Bucharest

Keywords: *infectious risk, decontamination, disinfection, impressions, moulds, prosthetic pieces*

Abstract: *The risk of infection in dental medicine and moreover in dental technology is a real threat, known by all specialists. Nevertheless, prevention of infectious risk in dental technology by decontaminating and disinfecting impressions, moulds, but also intermediate or completed prosthetic pieces, is hindered nowadays by a relatively high percentage of dental technicians. Therefore, the following material is meant to be an attempt to bring forward solid arguments regarding the ever present danger of the disease concerning the specialised personnel working in dental technology laboratories, especially due to handling dental impressions.*

INTRODUCTION

It is a known fact that every person who undertakes any kind of professional activity is, medically speaking, under the influence of a complex system of harmful agents, characteristic to every working environment. From this general collection of harmful agents, in the last twenty years, the infectious agents have gained great momentum, manifested through a series of incidents and sometimes even tragic accidents.(1-5)

Therefore, in Romania also, in the past and as well as in present times, there has been an aggressive demand in maintaining classic measures of hygiene, asepsis and antisepsis in all medical specialities, including dental technology.

Sadly, although dentists and medical assistants, who are in direct contact with the patient, and therefore with the bodily fluids and humours existent in the oral cavity, but also with the instruments, materials and prosthetic pieces that were in direct contact with them, have completely mastered the rules of hygiene, asepsis and antisepsis, the dental technicians who intervene within the technological process of manufacturing the fixed or removable prosthetic restorations, without having direct contact with the patient (meaning indirect contact) are not always properly instructed regarding the prevention of the infectious risk. This situation is easily explained by the fact that in the last two decades, there have been recorded cases of infections with tuberculosis, hepatitis (contaminations with hepatitis B virus (HBV) and hepatitis C virus (HCV) and so on, within the personnel working in laboratories of dental technology.(1-5)

PURPOSE

To be more precise, the main vectors of transmitting pathogen agents from dental practices to the technical division, specifically, to dental laboratories are represented by dental impressions, all types of moulds, occlusion splints, models used in fitting, and last but not least, fixed or removable prosthetic restorations, all these never being decontaminated neither when leaving the dental practice nor entering the dental laboratory.(1-5)

Though a relatively small number of technical laboratories have started to either decontaminate or disinfect themselves, or to condition dental practices with which they collaborate to decontaminate the impressions, moulds, provisional prosthetic pieces or dental restorations, which return to the technical division, nevertheless, a high percentage of dental technicians are ignoring, either by convenience or ignorance, this apparently insignificant aspect, considering it a reason to uselessly hindering the technological process of manufacturing the fixed or removable prosthetic restorations.(1-5) This situation has been relatively easy to prove by elaborating an extremely simple and concise questionnaire, which we have submitted to 96 dental technicians from Bucharest and Brașov and also to students in Dental Technology belonging to the Midwife and Medical Assistance Faculty from "Carol Davila" University of Medicine and Pharmacy in Bucharest.

MATERIALS AND METHODS

As it was previously stated, the applied method in the present study was the use of a written survey. Being extremely simple and concise, it contains six queries, on which the statistical analysis has been made and displayed with the help of representative charts.

The questionnaire was submitted to a number of 96 people of ages ranging between 20 and 60, dental technicians from Bucharest and Brașov or students in Dental Technology belonging to the Midwife and Medical Assistance Faculty from "Carol Davila" University of Medicine and Pharmacy in Bucharest.

Among the 96 inquired subjects, 40 were students in Dental Technology, amounting to 41.66% (figure no. 1). Moreover, 60 subjects, representing 62.5%, were female, while the rest, 36 subjects, representing 37.5%, were of male gender (figure no. 2).

[3]Corresponding author: Mihai Burlibașa, B-dul. Mărășești, Nr. 2B, Bl. A, Sc. 2, Et. 5, Ap. 17, Sector 4, București, România, E-mail: mburlibasa@gmail.com, Phone: +04723 472632

Article received on 13.01.2014 and accepted for publication on 17.08.2015
ACTA MEDICA TRANSILVANICA September 2015;20(3):139-141

Figure no. 1. Test group subjects' percentage (41.66% students in Dental Technology, 58.34% qualified dental technicians)

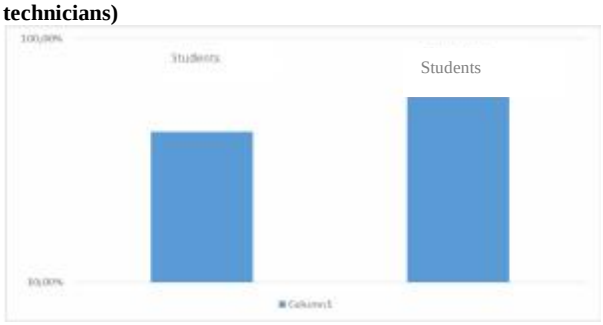
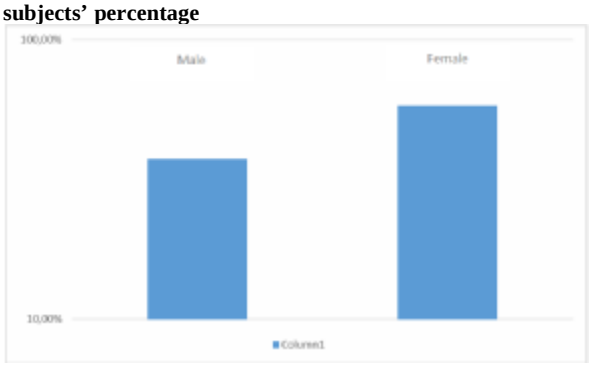


Figure no. 2. Male (37.5 %) and female (62.5%) test subjects' percentage



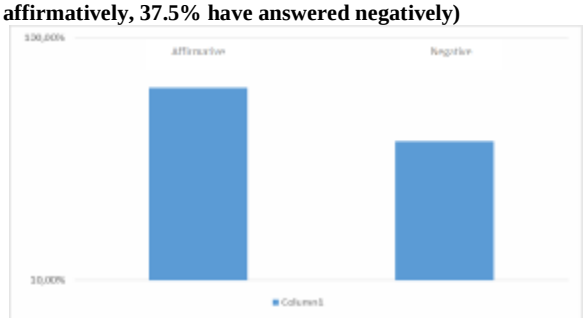
Questionnaire

1. Are you familiar with the notion of "infectious risk" in dental technology?
2. Are you familiar with the classic rules of hygiene, asepsis and antisepsis which have to be applied unconditionally in dentistry, including dental technology?
3. Are you familiar with the fact that pathogen carriers present in the patients' oral cavity can be transmitted from the dental practice to the dental laboratory through impressions, moulds or provisional or final prosthetic pieces?
4. Have you conditioned your collaboration with dental practices with decontaminating and disinfecting impressions, moulds or provisional or final prosthetic pieces, based upon predetermined work protocols?
5. Do you carry out within the dental laboratory the decontamination and disinfection of impressions, moulds or provisional or final prosthetic pieces upon their arrival from dental practices?
6. Do you consider that the undertaking of decontamination and disinfection of impressions, moulds or provisional or final prosthetic pieces is further deterring, without justifiable arguments in its favour, from a financial and time consuming point of view, the technological process of manufacturing fixed or removable prosthetic restorations?

RESULTS AND DISCUSSIONS

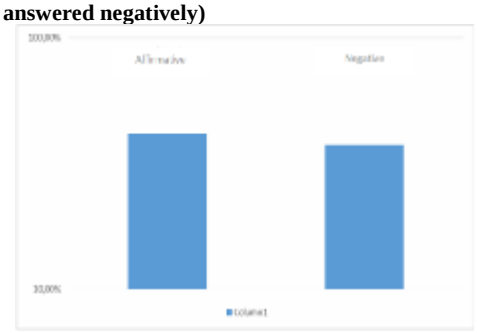
As a result of analysing the answers to the questionnaire, at the first question regarding the "knowledge of the existence of infectious risk in dental technology", a number of 60 people (among which 40 were students in Dental Technology), representing 62.5%, have answered affirmatively, while the 36 subjects representing the remaining 37.5% have responded that they have no knowledge of the existence of "infectious risk" in dental technology (figure no. 3).

Figure no. 3. Subjects' percentage who have answered the first question in the survey, regarding "the existence of infectious risk in dental technology" (62.5% have answered affirmatively, 37.5% have answered negatively)



At the second item of the questionnaire regarding "acknowledging and observing the classic rules of hygiene, asepsis and antisepsis in dentistry (including dental technology)", 40 students have answered affirmatively (41.66%), a fact that indicates that during their university education they have been properly informed about these aspects, while the rest of 56 subjects (representing 58.34%) have answered negatively (figure no. 4).

Figure no. 4. Subjects' percentage who have answered the second question from the questionnaire regarding "acknowledging and observing the classic rules of hygiene, asepsis and antisepsis in dentistry (including dental technology)" (41.66% have answered affirmatively, 58.34% have answered negatively)

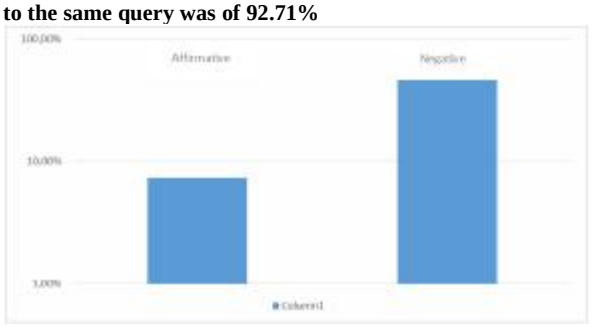


To the third survey item, the question referring to "pathogen carriers present in the patients' oral cavity can be transmitted from the dental practice to the laboratory through impressions, moulds or provisional or final prosthetic pieces", 50 people (among them all 40 students in Dental Technology) representing 52.08%, have replied affirmatively, while the rest of 46 subjects, resuming 4.92%, have answered negatively (figure no. 5).

Figure no. 5. Subjects' percentage who answered affirmatively to the third item of the questionnaire - 52.08%, while the percentage of those answering negatively to the same question was of 47.92%

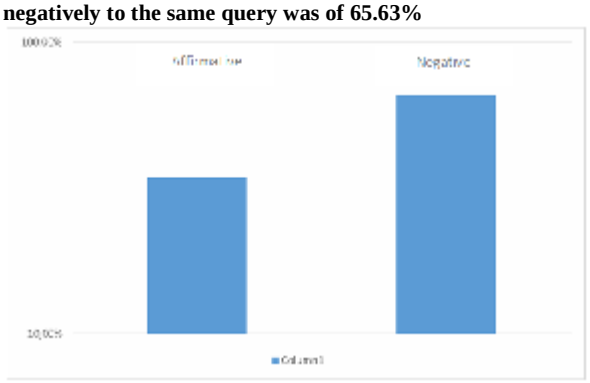
To the fourth question of the questionnaire regarding "conditioning the laboratories' collaboration, where subjects are working either during their internship or being employed in dental practices, related to decontaminating and disinfecting impressions, moulds or provisional or final prosthetic pieces, based upon predetermined work protocols", only seven subjects, representing 7.29% of the total have answered affirmatively, while the rest of 89 subjects, amounting to 92.71%, have replied negatively (figure no. 6).

Figure no. 6. Subjects' percentage who answered affirmatively to the fourth question in the survey was of 7.29%, while the percentage of those who negatively replied to the same query was of 92.71%



To the fifth question in the inquiry related to "carrying out the decontamination and disinfection inside the dental laboratory of the impressions, moulds or provisional or final prosthetic pieces upon their arrival from dental practices", 33 subjects, amounting to 34.37%, have replied affirmatively, while the rest of 66 subjects, representing 65.63%, have answered negatively (figure no. 7).

Figure no. 7. Subjects' percentage who have replied affirmatively to the fifth question in the survey was of 34.37%, while the percentage of those who answered negatively to the same query was of 65.63%



To the last query in the survey (question 6) regarding the fact that "these operations of decontaminating and disinfecting impressions, moulds or provisional or final prosthetic pieces is further deterring, without justifiable arguments in its favour, from a financial and time consuming point of view, the technological process of manufacturing fixed or removable prosthetic restorations", all subjects (meaning 100%) have answered affirmatively.

CONCLUSIONS

Based upon applying and analysing the results of this questionnaire, a series of conclusions could be drawn, from which we will enumerate those considered to be most significant:(1-5)

- Even though impressions, provisory prosthetic pieces (occlusion splints or fitting models) and final prosthetic restorations are without a doubt vectors for carrying pathogen agents from the dental practice towards the dental laboratory, decontaminating and disinfecting them is not carried out with the exception of a very small percentage. We are of strong belief that carrying out the decontamination and disinfection inside the dental laboratory of the impressions, moulds or provisional or final prosthetic pieces should become mandatory during the technological process taking place between the clinical and technical divisions;
- Moreover, training courses for dental technicians regarding implementing the concepts of preventing and controlling the infectious risk in dental technology, both by achieving a compulsory knowledge of classic rules of hygiene, asepsis and antisepsis in dentistry (including its technological department) and by particularising them in dental technology, should be intensified;
- Emphasising the concept of medical team: "dental surgeon, dental assistant, dental technician".

REFERENCES

1. Rosenstiel SR, Land MF, Fujimoto J. Contemporary fixed prosthodontics. Mosby-Elsevier; 2006.
2. Burlibașa M, Carabela M, Moraru L, Dincă M, Ionescu I. Decontaminarea amprentelor în practica stomatologică şi în chirurgia maxilo-facială. Ars Docendi Publishing, Bucharest; 2004.
3. Bratu D. and colab. Materiale dentare în cabinetul de stomatologie. Helicon Publishing, Timișoara; 1998.
4. Anusavice KJ. Philips science of dental materials. Saunders-Elsevier; 2006.
5. Burlibașa M, Dobrovolschi O, Dincă M, Dobrovolschi T, Onisâi L, Sfarghiu L, Sfeatcu R, Tănase G. Ghid practic de pentru asistentele de medicină dentară. Transilvania University Publishing, Brașov. 2011;1.