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Oral health status among long-term hospitalized adults: A cross sectional study.

Background: Many Long-Term Care (LTC) patients suffer from dental neglect due to difficulties in achieving appropriate dental professional care; although oral health has important influence on the quality of life among them. Dental care of the long term institutionalized adults is often limited to emergency and first aid care and there is insufficient data regarding oral health status in this population.

Objectives: To describe the oral health status of the long-term hospitalized adults.

Materials and methods: A cross-sectional study including clinical oral examinations was carried out among institutionalized LTC patients aged 18 and older in a geriatric - psychiatric Hospital in Israel. Main outcome measures were: edentulousness, presence of dentures, mucosal findings, number of teeth, number of functional teeth, level of dental hygiene and, dental caries.

Results: Subjects' mean age was 65 years; 31.3% of the patients were edentulous, and only 14% had partial or full dentures. Only 17.2% were caries free. Females had significantly higher number of caries cavitation than men ($p=0.044$). The number of caries cavitation was higher among patients with higher plaque scores ($p<0.001$) and when taking Clonex ($p=0.018$). Number of residual teeth in mouth was higher in the low plaque score group ($p<0.001$). Carious teeth percentage was higher among the high plaque score group ($p<0.001$)

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Introduction

Poor oral health among older people has particularly been manifested globally in high level of tooth loss and dental caries experience, high prevalence of periodontal disease, xerostomia, and oral precancer or cancer (Petersen &Yamamoto, 2005).

Oral health has found to have a potentially important influence on quality of life among elderly people (Zini & Sgan-Cohen, 2008).

The vast majority of the older are living independently and only a minority is functionally impaired, requiring long-term nursing, with estimates of 5% in United States, Canada and Finland (Niessen, 2000; Kozyrskyi et al., 2000; Peltola et al., 2004).

Standards of oral health are not considered satisfactory in Long-Term Care (LTC) facilities. Many LTC patients suffer from dental neglect due to difficulties to achieve appropriate dental professional care, and are incapable of maintaining a daily oral hygiene regimen without assistance (Latt & Stowell, 1978).These patients have physical limitations, chronic diseases, and the majority of them require medication which increases the risk of oral disease and, as a result systemic diseases (Peltola et al., 2004).

Lack of perceived needs was the most common reason given for not seeking care by these residents, and over 70% of residents cited financial constraints as a significant barrier to seeking dental treatment (Berkey et al., 1991).

Poor oral hygiene may cause unknown sources of mouth pain such as oral candidiasis, angular chelitis or ill-fitting dentures (Simunković et al., 2005; Jablonski et al., 2005). Oral pain and infections may prevent proper eating and nutrition intake, which may in turn result weight loss from malnutrition and dehydration (Jablonski et al., 2005). Untreated infections, such as chronic periodontitis, may impede serum glucose control in diabetics (Jablonski et al., 2005). Bacteremia caused by oral disease has resulted in brain abscesses, heart disease, joint infections and fever. The link between oral disease and cerebrovascular accidents and acute myocardial infarctions is being rigorously studied as well (Matear, 1999). Additionally, there may be links between poor oral hygiene and systemic disease, such as nursing home-acquired pneumonia (Jablonski et al., 2005).

The LTC and homebound elderly are the most frail and functionally dependent of the geriatric population, and are a group with significant oral health disparities (Jablonski et al., 2005). Dental care of the institutionalized elderly is often limited to emergency care and is not aimed at retaining teeth by means of restorative treatment and daily oral care (Peltola et al., 2004).Many LTC patients are medically compromised, may have difficulty swallowing or

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are tube fed (Matear, 1999).This population have many oral problems such as: denture-related problems, coated tongue, angular cheilitis, and Candida-associated denture stomatitis (Peltola et al., 2004; Samaranayake et al., 1995).

There is a lack of in-depth information about the state of oral health of the LTC population. These are, in spite of the increasing amount of elderly population, and as a result from it, increasing of LTC. As, in 1948, when the state of Israel was established, elderly persons comprised 3% of the total population (Schmid, 2009). By 2008, the population of elderly persons reached 715,500, or slightly over 10% of the population (Schmid, 2009). In Israel at 2009, there were 135,336 (LTC) insured beneficiaries (Schmid, 2009). According to the distribution most long-term care of them are 75 years of age and above (Schmid, 2009).

In Israel total long-term care beds in all sectors in 2008 were 29,761. Institutions that accommodate these long-term care patients are known as long-term care hospitals (3,394 beds), skilled nursing homes and inpatient rehabilitation facilities.

This cross-sectional epidemiological study was carried out at Herzog Hospital in Jerusalem. Herzog Hospital is the third largest hospital in Jerusalem and Israel's foremost center for geriatric and psychiatric health care.

The study of oral health status among Herzog Hospital's long-term hospitalized adults were part of the community program for prevention and improve oral health long-term hospitalized adults that was taken place in between 2010-2011 years.

The aim of this study was to determine the oral health status among institutionalized non communicable residents of Herzog Hospital in Jerusalem.

Methods

The survey was carried out among long-term care inpatients, who were more than 6 month hospitalized. Study population included 190 patients from 330 hospitalized patients.

Excluded criteria were: patients undergoing dialysis, acute psychiatric patients and others defined by a hospital nursing team, as a "temporary patients". The study was approved by the appropriate institutional IRB board.

All surveyed patients were above 18 years old. These patients were defined as non-communicable by the team of the hospital.

The clinical examinations included diagnosing the presence of coronal and root decay, counting the number of teeth, Oral Hygiene Index (OHI) and denture status was assessed. No radiographs were taken.

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The patients were examined in their hospital rooms. The dentists carried out the clinical examinations under artificial light and used a dental mirror and a CPI probe (Martin, Solingen, WHO 973/80, Germany). All patients were examined at the bedside. Teeth were neither dried nor cleaned before the examination.

Pre-test of the clinical examination was carried out by two dentists who were calibrated on 10 patients. The patients were exams by two reviewers, one after the other, with comparison the results and discussion of findings.

Removable dentures: The presence of removable dentures was recorded for each jaw and was dichotomized as a full or partial denture.

Dental status: Dental status was recorded for each tooth. A tooth was recorded as present when it was visible fully or partially in the mouth?

Caries: Dental caries was recorded according to the World Health Organization criteria and without radiographs (World Health Organization,1997).

It was decided that a decayed tooth was counted only once regardless the number of caries focuses in the tooth. Caries' percentages were calculated as the rate between number of dental caries per number of remaining teeth in the mouth.

Oral Hygiene Index (OHI) Silness-Löe Index: The measurement of oral hygiene by Silness-Löe plaque index was based on recording both soft debris and mineralized deposits on the following teeth (Silness & Loe, 1964). Missing teeth are not substituted. Each of the four surfaces of the teeth (buccal, lingual, mesial and distal) is given a score from 0-3. The scores from these four areas are added and divided by four in order to give the plaque index for the tooth with the following scores and criteria: Silness-Löe plaque index calculated by the following index teeth:16,12, 24, 36, 32, 44. In the case of absent of these teeth are adjacent teeth were examined.

Each tooth was examined from 4 aspects - buccal, lingval, mesial and distal. Every aspect given a score from 0 to 3 according to the following criteria:

0 - No plaque; 1 - A film of plaque adhering to the free gingival margin and adjacent area of the tooth. The plaque may be seen in situ only after application of disclosing solution or by using the probe on the tooth surface; 2 - Moderate accumulation of soft deposit s within the gingival pocket, or the tooth and gingival margin which can be seen with the naked eye; 3 - Abundance of soft matter within the gingival pocket and/or on the tooth and gingival margin. The index for the patient is obtained by summing the indices for all six teeth and dividing by six. For the current study, the index was divided into two dichotomous levels and was

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renamed as OHI2: OHI scores of zero till two were recorded as zero in OHI2 and OHI score of 3 was recorded as one in OHI2.

Statistical Analysis

The data collected were entered into an Excel sheet, and transferred to SPSS 17.0 for further analysis. Pearson Chi-square tests were employed for testing the statistical significance of differences between gender, taking medicines (categorical variables), OHI2 and using dentures. Independent t-test was employed detecting differences between number of caries cavitations, number of residual teeth and percentage of carious teeth with the categorical variables above. Correlation between numerical variables (age, number of teeth and percentage of carious teeth) was employed using Pearson correlation coefficient. The level of significance was set as $P<0.05$.

Multiple Logistic Regression was conducted to eliminate potential confounders and mediators among all the variables tested. The dependent variable was OHI2

Variables that showed a significance level of less than $P<0.15$ in the univariate analyses were included in the regression.

Linear regressions were conducted when the dependent numerical variables were number of caries cavitations, number of residual teeth and percentage of carious teeth.

Results

The survey included one hundred fifty three hospitalized individuals with a mean age of 65.03±18.67 years, from them 57.4% were males and 42.6% female, 33.1% were mechanical ventilated, 41.8% had nasogastric feeding devices. Clinical dental evaluation was possible among 94.2% of the individuals. One third (31.3%) of the patients were edentulous, and only 14% had partial or full dentures. Only 17.2% were caries free.

Table 1 presents the associations by gender, medicines obtaining with dichotomy plaque scores and denture usage. Mean number of caries cavitation was 4.17±4.50. Females had significantly higher number of caries cavitation than men (5.25±5.25 and 3.36±3.70 respectively, $P=0.044$). The number of caries cavitation was higher among patients with higher plaque scores (5.96±5.12 vs. 2.00±2.23, $P<0.001$) and when taking Clonex (5.89±5.71 vs. 3.47±3.73, $P=0.018$). Number of residual teeth in mouth was higher in the low plaque score group (20.98±7.75 vs. 14.23±8.62, $P<0.001$). Carious teeth percentage was higher among the high plaque score group (53.61±35.03 vs. 14.88±23.00, $P<0.001$).

Table 2 presents the numerical descriptive results of number of caries cavitation, number of residual teeth, and percentages of carious teeth by gender, dichotomic plaque scores, medical

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status and Clonex obtaining. The number of caries cavitations, number of residual teeth and carious teeth percentage were not found to be statistical significant among patients who were being mechanical ventilated. Number of residual teeth in the mouth were significantly lower when using a nasogastric feeding device (8.57±10.43 vs. 13.40±10.62, P=0.007).
Mean number of residual teeth was 11.35±10.77. Age was found to be significantly correlated in a decreasing relationship with number of residual teeth (Pearson coefficient= -0.510, P<0.001).
The results of the multivariate regression analysis indicated that only percentage of carious teeth was the predictor for a high plaque score (OR=1.05, P=0.002, R^2=0.435) (Table 3). In a linear regression high plaque score was a predictor for caries cavitation (P<0.001, table 4). Also, high plaque score was significant predictor for the number of residual teeth (P<0.001, table 4) in mouth and for percentage of carious teeth (P<0.001, table 4)..

Discussion

The survey included hospitalized individuals with a mean age of 65 years. The participants in this study were younger than in other parallel studies. Subjects' mean age was 83 years old according (Peltola et al.,2004). According (Angelillo et al., 1990) participants mean age was 81 years.
The differences in mean age have been explained by differences in methodological criteria's. As (Peltola et al., 2004; Angelillo et al., 1990; Iglesias & García, 2008) included in their studies only those aged 60 and older. In our study we include all hospitalized aged 18 years and older. Difference in age may explain difference in clinical findings. For example, according to our observation, one third (31%) of the patients were edentulous, while 42% were edentulous according to (Peltola et al., 2004). Instead of this, according to (Angelillo et al., 1990) 60% of the patients were edentulous. On the other hand, it is important to take into consideration, the different by prevalence of edentulous between countries among elderlies in the same age (Petersen et al., 2005).
The number of remaining teeth in the study decreased with increasing age, similar to the results found (Peltola et al., 2004) (mean of 12.4). In study carried out in Quebec Canada, according to collected information, average number retained teeth was 12.9 (Arpin et al., 2008). In our study, in spite of younger participants, we found a mean number of 11.3(plus

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SD) residual teeth. Possible explanation of the results is worse caries status in Israel than in Finland and Canada populations in similar age groups (Zusman et al., 2005; WHO, 2000).

One of the exceptional result in the study was the lower percent of participants that do not wear any kind of dental prosthesis, when comparing to other studies, While, according to our finding, 60% of edentulous do not wear dental prosthesis, Peltola et al. found 18% such participants (Peltola et al., 2004) and Iglesias & García found 21% such participants (Iglesias & García, 2008).

The average number of decayed teeth was 4.2 teeth in our investigation while Arpin et al. found 1.62 decayed teeth in their study (Arpin et al., 2008). According their study in 2004, 49.3% of elderly people had decayed teeth, compared with 82.8% in our study.

In our study, females had higher number of caries cavitation than men. The same finding observed among elder in investigation of Hämäläinen et al. (Hämäläinen et al., 2004). According to results, men had more intact teeth and lower DMF scores than women (Hämäläinen et al., 2004).

As expected we found association between number of caries cavitation and high plaque scores. This phenomenon is well known and proofed again in recent studies (Hashim et al., 2013; Dawani et al., 2012).

We also found a statistically significant link between the number of caries cavitation and taking Clonex (Clonazepam). Unfortunately there is no evidence in the literature that support this finding.

Oral cleanliness was generally poor which is in line with previous observations (Peltola et al., 2004). Several explanations have been given for the neglect of daily oral hygiene of long-term patients. One of the explanations was that nursing personnel are not qualified to assist the institutionalized elderly in oral self-care (Peltola et al., 2004). This phenomenon choked in our observation in community study, and found as right (Bilder et al., 2011).

Very few oral mucosa and gums infections were found in our studythis was an unexpected finding for us. Possible explanation might be that, on one hand only 12.6% from the participants were wearing dental dentures, and on the otherhand most of the participants received anti-inflamotary drugs, including antibiotics additionally to daily treatment of oral cavity with solutions of chlorhexidine 0.12% may positively effect gums health and affect periodontal status

Angular cheilitis was found in our study in significant proportions similarly to the study of (Peltola et al.2004) (14% vs. 19%). Nevertheless, these findings are lower than

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Samaranayake et al. findings (Samaranayake et al., 1995). Most patients who suffer from angular cheilitis, according to our observation, were patients with nasogastric feeding device. In our study we found a very high percent of patient with serious medical condition. There were obligate to use medical device as, nasogastric feeding 41.8% and mechanical ventilated 33.1%. These conditions may influence on the findings and would be explain differences among various investigations. The oral health status among long-term hospitalized adults need to continue learning, for improving health and quality of life of the patients themselves.

Conclusion

Our study hypothesis was proved that oral health of the hospitalized elderly was poor, and the majority needed dental treatments. A major concern should be an emphasize on prevention, and on oral cavity and dentures hygiene. According to the results more attention should be given to dental care among long-term hospitalized elderly by providing daily assistance in oral hygiene procedures.

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References

Angelillo IF, Sagliocco G, Hendricks SJ, Villari P. Tooth loss and dental caries in institutionalized elderly in Italy. Community Dent Oral Epidemiol. 1990; 18:216-8.

Arpin S, Brodeur JM, Corbeil P. Dental caries, problems perceived and use of services among institutionalized elderly in 3 regions of Quebec, Canada.
J Can Dent Assoc.2008;74:807.

Berkey DB, Berg RG, Ettinger RL,Meskin LH. Research review of oral health status and service use among institutionalized older adults in the United States and Canada.
Spec Care Dentist 1991;11:131-6.

Bilder L., Zini A., Vered Y., Sgan-Cohen H., Mann J. Oral health promotion, among institutionalized people, delivered by caregivers. IADR Israeli Division Meeting June 30, 2011. Tel Aviv.

Dawani N, Nisar N, Khan N, Syed S, Tanweer N. Prevalence and factors related to dental caries among pre-school children of Saddar town, Karachi, Pakistan: a cross-sectional study. BMC Oral Health. 2012 27;12:59.

Jablonski RA, Munro CL, Grap MJ, Elswick RK. The role of biobehavioral, environmental, and social forces on oral health disparities in frail and functionally dependent nursing home elders. Biol Res Nurs 2005;7:75-82.

Hämäläinen P, Meurman JH, Keskinen M, Heikkinen E. Changes in dental status over 10 years in 80-year-old people: a prospective cohort study.
Community Dent Oral Epidemiol. 2004;32:374-84.

Hashim R, Williams S, Thomson WM. Oral hygiene and dental caries in 5- to 6-year-old children in Ajman, United Arab Emirates. Int J Dent Hyg. 2013;11:208-15.

Iglesias Corchero AM, García Cepeda JR. Oral health in people over 64 years of age, institutionalized in Centres for the Aged in the Vigo Health District Spain, 2005. Med Oral Patol Oral Cir Bucal. 2008 1;13:E523-8.

Kozyrskyi A, De Coster C, St John P. Long-Stay Patients in Winnipeg Acute Care Hospitals.Manitoba Centre for Health Policy and Evaluation Department of Community Health Sciences Faculty of Medicine, University of Manitoba. September 2000. http://mchp-appserv.cpe.umanitoba.ca/reference/longstay.pdf

Latt B, Stowell BS. Dental care for nursing home patients.
Public Health Rep 1978; 93: 90–92.

Matear DW. Demonstrating the need for oral health education in geriatric institutions. Probe 1999;33:66-71.

Niessen LC. Geriatric dentistry in the next millennium: opportunities for leadership in oral health. Gerodontology 2000; 17: 3–7.

Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. Bull World Health Organ. 2005;83:661-9.

Petersen PE, Yamamoto T. Improving the oral health of older people: the approach of the WHO Global Oral Health Programme. Community Dent Oral Epidemiol. 2005;33:81-92.

Peltola P, Vehkalahti MM, Wuolijoki-Saaristo K.Oral health and treatment needs of the long-term hospitalised elderly. Gerodontology. 2004;21:93-9.

Samaranayake LP,Wilkieson CA, Lamey PJ,MacFarlane TW. Oral disease in the elderly in long-term hospital care. Oral Dis 1995;1:147-51.

Schmid H. (2009) „Israel‟s long-term care insurance scheme‟, International Expert Meeting on "Monitoring Long-Term Care for the Elderly", 7 - 9 September 2009, Jerusalem, Israel http://www.euro.centre.org/data/1254227500_87459.pdf

Silness J, Loe H. Periodontal disease in pregnancy. II. Correlation between oral hygiene and periodontal condition. Acta Odontol Scand 1964; 22: 121-135.

Simunković SK, Boras VV, Pandurić J, Zilić IA. Oral health among institutionalised elderly in Zagreb, Croatia. Gerodontology. 2005;22:238-41.

World Health Organization. Oral health surveys – basic methods. 4rd ed. Geneva: WHO; 1997.

WHO. Global Data on Dental Caries Prevalence. (DMFT) in Children aged 12 years WHO/NMH/MNC/ ORH/ Caries.2000.
http://whqlibdoc.who.int/hq/2000/WHO_NMH_MNC_ORH_Caries.12y.00.3.pdf).

Zini A, Sgan-Cohen HD. The effect of oral health on quality of life in an underprivileged homebound and non-homebound elderly population in Jerusalem. J Am Geriatr Soc. 2008;56:99-104.

Zusman SP, Ramon T, Natapov L, Kooby E. Dental health of 12-year-olds in Israel-2002. Community Dent Health. 2005;22:175-9.

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Table 1 (on next page)

Distribution of medical status, dichotomic plaque scores, and denture usage by gender.

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		OHI2						*p**	denture						*p**
		0 (0-2)		1 (3)		total			0 no		1 yes		total		
		n	%	n	%	n	%		n	%	n	%	n	%	
Gender	**Male**	28	51.9	26	48.1	54	57.4	0.061	73	90.1	8	9.9	81	56.6	0.264
	Female	13	32.5	27	67.5	40	42.6		52	83.9	10	16.1	62	43.4	
Clonex	**No**	34	51.5	32	48.4	66	70.2	0.018*	86	86.0	14	14.0	100	69.9	0.437
	yes	7	25.0	21	75.0	28	29.8		39	90.7	4	9.3	43	30.1	

* Pearson Chi square, statistically significance at $P<0.05$.

Table 2(on next page)

Mean and standard deviation of number of caries cavitations, number of residual teeth, and percentages of carious teeth by gender, dichotomic plaque scores, and Clonex obtaining.

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		Number of caries cavitations				Number of residual teeth				Carious teeth percentage			
		N	Mean±SD	CI	*p**	N	Mean±SD	CI	*p**	N	Mean±SD	CI	*p**
Gender	**Male**	53	3.36±3.70	2.34-4.38	0.044*	81	11.58±10.64	9.23±13.93	0.776	53	31.62±34.17	22.20-41.04	0.113
	Female	40	5.25±5.25	3.57-6.93		63	11.06±11.02	8.29±13.84		40	43.42±36.48	31.75-55.08	
OHI2	**0 (0-2)**	40	2.00±2.23	1.29-2.71	<0.001*	41	20.98±7.75	18.53-23.42	<0.001*	40	14.88±23.00	7.53-22.24	<0.001*
	1 (3)	51	5.96±5.12	4.52-7.40		53	14.23±8.62	11.85±16.60		51	53.61±35.03	43.76-63.46	
Clonex	**No**	66	3.47±3.73	2.55-4.39	0.018*	100	11.67±10.97	9.49-13.85	0.597	66	32.96±33.83	24.64-41.27	0.112
	Yes	27	5.89±5.71	3.63-8.15		44	10.64±10.38	7.48-13.79		27	45.84-38.33	30.68-61.00	

*Independent t test, statistical significance at $P<0.05$.

Table 3(on next page)

Logistic regression for effect of independent variables on dichotomic plaque score group.

	B	OR	95% CI	*p*
Gender	-0.36	0.70	0.24-2.06	0.516
Clonex	-0.90	0.41	0.12-1.32	0.134
Number of teeth	-0.00	0.98	0.92-1.08	0.950
Percentages caries	0.05	1.05	1.02-1.08	0.002*
Constant	-0.19	0.83	---	0.882

*Nagelkerke R^2=0.435

Table 4(on next page)

Linear regression for effect of independent variables on number of caries cavitations.

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	B	Beta	95% CI	*p*
Outcome: number of caries cavitations				
caries cavitations (-response)	1.06	0.12	-0.70-2.82	0.234
Dichotomic plaque score (OHI2(	3.80	0.42	2.07-5.53	<0.001*
Mech ventilation	1.52	0.15	-0.42-3.47	0.124
Constant	0.51	--	-1.43-2.46	0.601
Outcome: number of residual teeth				
age	-0.94	-0.19	-0.20-0.01	0.076
Dichotomic plaque score (OHI2(	-6.33	-0.36	-9.83- -2.83	0.001*
Nasogastric tube	1.08	0.57	-2.86-5.03	0.587
Mech ventilation	3.45	0.18	-0.68-7.59	0.100
Clonex	0.08	0.00	-3.80-31.34	0.967
Constant	23.40	--	15.47-31.34	<0.001
Outcome: percentage of carious teeth				
age	0.27	0.17	-0.10-0.64	0.148
Gender	6.80	0.09	-6.54-20.14	0.314
Dichotomic plaque score (OHI2(	35.69	0.50	22.15-49.22	<0.001*
Clonex	5.60	0.07	-9.27-20.47	0.456
Constant	-3.67	--	-28.18-20.84	0.767