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Perception of Cautery

Adenosine Deaminase

Highlights

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Discovering Thoughts, Inventing Future

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DISEASES



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Perception of Cautery Healing Effect Among Infants' Parents at the Southwestern Area of Saudi Arabia

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Abstract- To explore the pattern and determinants of traditional cautery practices for management of ailments among infants visiting the outpatient clinics of governmental hospitals in Aseer District. Methods: This study was conducted at the Pediatrics' Outpatient Clinics of governmental hospitals within Aseer Region. The data collection sheet included personal characteristics and variables related to cautery practices. The study group comprised 150 infants and an age-and gendermatched control group (134 infants) who did not have any cautery marks in their bodies. Results: Parents sought cautery for their infants mainly because of abdominal distension (28%), prolonged cough (27.3%), persistent vomiting (22%) and excessive crying (14%). The main sites for cautery were the infant's chest (50.7%) and the abdomen (38.7%). The person who performed cautery to the infants was mainly a professional traditional healer (89.3%). Inflammation of skin at the cautery site occurred in 26.7% of infants.

Keywords: cautery, infants, perception, saudi arabia.

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Perception of Cautery Healing Effect Among Infants' Parents at the Southwestern Area of Saudi Arabia

Ali M. Al-Binali ^α, Mohammed A. Al-Huneif ^σ, Safa M. Al-Haider ^ρ, Ossama A. Mostafa ^ω, Suleiman H. Al-Fifi[‡] & Ahmed A. Mahfouz[§]

Abstract- To explore the pattern and determinants of traditional cautery practices for management of ailments among infants visiting the outpatient clinics of governmental hospitals in Aseer District.

Methods: This study was conducted at the Pediatrics' Outpatient Clinics of governmental hospitals within Aseer Region. The data collection sheet included personal characteristics and variables related to cautery practices. The study group comprised 150 infants and an age-and gender-matched control group (134 infants) who did not have any cautery marks in their bodies.

Results: Parents sought cautery for their infants mainly because of abdominal distension (28%), prolonged cough (27.3%), persistent vomiting (22%) and excessive crying (14%). The main sites for cautery were the infant's chest (50.7%) and the abdomen (38.7%). The person who performed cautery to the infants was mainly a professional traditional healer (89.3%). Inflammation of skin at the cautery site occurred in 26.7% of infants. Wound infection occurred in 4% while the 6.7% of infants had to be hospitalized after cautery. The complaint of more than one fifth of the infants (21.3%) got cured after cautery, while 50% improved, 26.7% did not improve and 2% worsened. There were significant differences according to parents' attained educational level ($p < 0.001$ for both fathers and mothers), with more cautery among infants whose parents had lower levels of education. Mothers' employment was significantly associated with less practice of cautery for infants ($p < 0.001$). Cautery was significantly more practiced for infants with high number of siblings ($p = 0.017$) and for infants within extended families ($p = 0.018$).

Conclusions: The perception of parents is in favor of practicing cautery for their infants' ailments. However, the observed improvement or cure of infants' after cautery is questionable. Further detailed studies are needed to explore if there are genuine effects for cautery on the human body.

Keywords: cautery, infants, perception, saudi arabia.

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I. INTRODUCTION

Traditional medicine constitutes any treatment or therapy that is not routinely and universally available to patients via the national health care system. It has always been an "invisible mainstream" within the health care delivery system that is practiced by faith or traditional healers (1).

Traditional medicine includes practices self-defined by their users as preventing or treating illnesses or promoting health and wellbeing. It views health and disease in the context of the human totality of body, mind and spirit (2).

Social, cultural and political values, as well as socioeconomic factors, influence the use of traditional medicine. Some people often continue to use their cultures' traditional medicine alongside, or even in place of, conventional medicine. Some cannot afford to pay for conventional health care services and find traditional medicine affordable and accessible (3).

Moreover, Stekelenburg et al. (4) reported that prolonged waiting time, for being clinically examined or operated upon, turned out to be an encouraging factor for going to traditional healers. In the hospital, 48% of the respondents are not helped within time, while only 28% are not helped in time by the traditional healers. The cost of treatment from a traditional healer is affordable, but paid only if the patient is cured.

In developing countries, the affordability, availability, and cultural familiarity of traditional medicine, as well as family influence, contribute to the continued visits to traditional healers (3). Reasons include influence of grandparents, religious beliefs and failure of modern medicine to find the answer to some chronic disorders (5).

Traditional healing practices are widely used today, as have been since ancient times (6). Traditional ways of healing illnesses originating in ancient societies are currently called complementary medicine. Many of the traditional medical systems are based on sound fundamental principles and an experience that dates centuries gained by healers' practices(7).

In the Arab world, the main areas of traditional therapy comprise herbal, kאי (cautery) and cupping (8). It has been observed that most patients in the Arab countries, especially those who have strong religious background, first consult faith or traditional healers, who usually explain the etiology of diseases by magic and witchcraft, evil eye, demons and other cultural factors. Two types of treatment modalities are mainly followed, either non-invasive practices, mostly reading from the Holy Quran, (known as roqyah), or invasive, mostly cautery, which is a frequent treatment option. A large number of patients rotate between traditional healers and biomedical doctors (9-10).

Al-Rowais et al. (11) reported that, in the Kingdom of Saudi Arabia, most of native healers were illiterate, who mainly used herbs (45%), cautery (28%), while 25% were reciting Quran. They concluded that traditional healers give a significant contribution to the health care system. Almost half of the population in Riyadh City consulted traditional healers at least once in their life.

The medical services in Saudi Arabia have improved tremendously over the last few decades, and health care centers are easily accessible to the population. Nevertheless, traditional medicine practices, including cautery, are still widely practiced (12).

Abou-Elhamd(13) noted that the practice may be associated with considerable health risks. However, Albilani(8) noted that traditional therapies are becoming increasingly popular even in developed countries being used by 33% to 42% of the general American population.

Recently, some clinical research studies have been employed to shed light on the patterns and efficacy of traditional medicine practices. However,

more studies in different fields of traditional medicine practices are still needed (14).

This study aim to explore the pattern and determinants of traditional cautery practices for management of ailments among infants visiting the outpatient clinics of governmental hospitals in Aseer District.

II. METHODS

This study followed a case-control study design. It was conducted within the period from January until December 2012, at the Pediatrics' Outpatient Clinics of hospitals within Aseer Region, whose population is mainly tribal in nature for which traditional medicine practices are common. The included hospitals were Aseer Central Hospital, Mahayel, Al-Berk, Sarat Obeida, Zahran Al-Janoub and Al-Farsha hospitals.

The data collection sheet included personal characteristics, regarding parents' age, education, mother's employment, number of siblings and type of family (i.e., nuclear or extended) in addition to variables related to cautery practices, e.g., reason for practicing cautery, the person who performed it, site of cautery and outcome. The data collection sheets were filled by the treating physician.

The study group comprised 150 infants. The inclusion criterion was having cautery mark(s) on their bodies explained by their parents as being for the management of certain health problems.

An age-and gender-matched control group comprised 134 infants who did not have any cautery marks on their bodies. Table (1) shows no statistically significant differences between both groups regarding their age or gender.

Table 1 : Comparison between study and control groups as regard to age and gender

Variable	Study Group	Control Group	P-value
Age:			
▪ <4 months	14 (9.3%)	12 (9.0%)	1.000
▪ 4-8 months	67 (44.7%)	61 (45.5%)	
▪ >8 months	69 (46.0%)	61 (45.5%)	
Gender:			
▪ Males	92 (61.3%)	82 (61.2%)	0.981
▪ Females	58 (38.7%)	52 (38.8%)	

a) Statistical Analysis

Data were coded, validated and analyzed using the SPSS PC + software package. Descriptive statistics were performed and the Chi square test was applied to test significance of differences between groups, at 5% level.

The study received the approval of the Research and Ethics Committee at King Khalid University, College of Medicine (REC-2011-03-02).

III. RESULTS

Parents sought cautery for their infants mainly because of abdominal distension (28%), prolonged cough (27.3%), persistent vomiting (22%) and excessive crying (14%).

The main sites for cautery were the infants' chest (50.7%) and the abdomen (38.7%). The person who performed cautery to the infant was mainly a

professional traditional healer (89.3%). Inflammation of skin at the cautery site occurred in 26.7% of infants. Wound infection occurred in 4% while the 6.7% of infants had to be hospitalized after cautery. The complaint of more than one fifth of the infants (21.3%) got cured after cautery, while 50% improved, 26.7% did not improve and 2% worsened (Table2).

Table 2 : Reasons for performing cautery, site of cautery, person who performed it, outcome of cautery

Variables	No.	%
Reason for performing cautery ⁽¹⁾		
▪ Abdominal distension	42	28.0
▪ Prolonged cough	41	27.3
▪ Persistent vomiting	33	22.0
▪ Excessive crying	21	14.0
▪ General weakness	10	6.7
▪ Jaundice	7	4.7
▪ Other reasons	25	16.7

(1) More than one reason were possible

Continuation of Table 2 : Reasons for Performing Cautery, Site of Cautery, Person who Performed it, Outcome of Cautery

Variables	No.	%
Site of cautery		
▪ Chest	76	50.7
▪ Abdomen	58	38.7
▪ Head	18	12.0
▪ Lower limbs	14	9.3
▪ Upper limbs	6	4.0
▪ Back	5	3.3
The person who performed cautery		
▪ Family members	16	10.7
▪ Known traditional healers	134	89.3
Complications of cautery		
▪ None	94	62.7
▪ Skin inflammation at site of cautery	40	26.7
▪ Infected burn wound	6	4.0
▪ Hospitalization	10	6.7
Outcome of complaint		
▪ Cured	32	21.3
▪ Improved	75	50.0
▪ No improvement	40	26.7
▪ Worsened	3	2.0

Table 3 : Comparison between infants in the study group with those in the control group regarding their parents and family characteristics

Characteristics	Study Group		Control group		P-values
	No.	%	No.	%	
Father's age					
▪ <30years	29	58.0	21	42.0	0.621
▪ 30-40years	61	50.0	61	50.0	
▪ >40years	60	53.6	52	46.4	
Mother's age					
▪ <30years	62	57.9	45	42.1	0.342
▪ 30-40years	66	48.5	70	51.5	
▪ >40years	22	53.7	19	46.3	
Father's education					
▪ Primary	48	82.8	10	17.2	
▪ Intermediate	36	80.0	9	20.0	

▪ Secondary	34	42.5	46	57.5	
▪ University	28	31.5	61	68.5	
▪ Postgraduate	4	33.3	8	66.7	<0.001
Mother's Education					
▪ Primary	91	87.5	13	12.5	
▪ Intermediate	17	54.8	14	45.2	
▪ Secondary	26	32.1	55	57.9	
▪ University	16	23.9	51	76.1	
▪ Postgraduate	0	0.0	1	100.	<0.001
				0	
Mother's employment					
▪ Housewife	132	60.6	86	39.4	
▪ Employed	18	27.3	48	72.7	<0.001

Continuation of Table 3 : Comparison between infants in the study group with those in the control group regarding their parents and family characteristics

Characteristics	Study Group		Control group		P-values
	No.	%	No.	%	
No. of siblings					
▪ <5	61	50.0	61	50.0	
▪ 5-10	69	50.4	68	49.6	
▪ >10	20	80.0	5	20.0	0.017
Type of family					
▪ Nuclear	109	49.1	113	50.9	
▪ Extended	41	66.1	21	33.9	0.018

Table (3) shows that infants in the study group did not differ significantly from those in the control group regarding their parents' age groups. However, there were significant differences according to parents' attained educational level ($p < 0.001$ for both fathers and mothers), with more cautery among infants whose parents had lower levels of education. Mothers' employment was significantly associated with less practice of cautery for infants ($p < 0.001$). Cautery was significantly more practiced for infants with high number of siblings ($p = 0.017$). cautery was significantly more practiced for infants within extended families ($p = 0.018$).

IV. DISCUSSION

This study showed that cautery has been practiced in Aseer District to manage health care disorders among patients as early as their first year of life. It has been revealed that parents commonly seek cautery for their infants even when they suffer from symptoms of ailments that can be controlled medically, like abdominal distension, prolonged cough, persistent vomiting or excessive crying.

El-Ghazali et al. (15) noted that traditional medicine practices occupy a significant part of Saudi Arabia's heritage and are widely accepted. Sheikh and Hatcher (16) stated that, for centuries, people have been using traditional means for treating ailments, and continued to use them alongside modern medicine. Despite all the marvelous advancements in modern

medicine, traditional medicine has always been practiced.

This study showed that the main sites for cautery were the infants' chest and abdomen. This is perhaps because the main infants' complaints were affecting these sites chest, e.g., prolonged cough and abdominal distension.

The person who performed cautery for infants in this study was mainly a traditional healer. Consequently, complications of cautery were common, e.g., inflammation of the skin at the cautery site and burn wound infection.

Moreover, the condition of some infants deteriorated after cautery and they had to be hospitalized. Despite the claimed cure of infants' complaints of more than fifth of the infants and the improvement among half of them after cautery, yet the complaint of one fourth did not improve and that of 2% worsened.

Such cure and/ or improvement might be explained to some extent by: relief of endogenous opioids in response to cautery, the natural history of such disease which usually improves with time, regardless of treatment, such as reflux, colicky pain and even chest problems.

Azaizeh et al. (17) stated that people will continue to flock to traditional healers for relief from minor and major ailments hoping for a permanent cure to their complaints, which frequently recur after being medically treated by physicians.

The controversy, that traditional healers are popular in spite of the fact that their practices may be harmful has been widely described and explained in literature. Sheikh and Hatcher (16) stated that some of the traditional healers are quacks, who are at the same time very caring people, and extraordinarily skilled in communication and counseling. In spite of the fact that there are certain horrible ones who would harm their patients at every turn, traditional healers are usually respected within their own communities, and they are often their opinion leaders. However, traditional healers lack education, training, regulation and evidence base (16).

Abou-Elhamd(12) stressed that it is not logic to burn patients to make them suffer more pain in order to treat their pain. Patients who have received cautery reported that it gives temporary relief followed by severe pain. Such treatment may possibly act by stimulating the release of endogenous opioids and other neurotransmitters.

Kim et al. (18) noted that, in spite of the relatively high extend of patients' satisfaction toward traditional medicine, it is important to be aware of the potential adverse effects and hazards that should be avoided.

Physicians should inquire about traditional medicine practices by their patients to protect them from harm. Moreover, clinicians should consider the cultural and personal meaning associated with diverse health beliefs and practices of patients (19).

IV. CONCLUSION

In conclusion, the perception of parents is in favor of practicing cautery for their infants' ailments. However, detailed studies are needed to explore if there are genuine effects for cautery on the human body.

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Adenosine Deaminase and Malondialdehyde Levels in Type-2 Diabetes Mellitus – a Short Study

By Meenakshi Thakur & Dinesh Javarappa

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Abstract- Diabetes mellitus is a group of metabolic disease characterized by a state of chronic hyperglycemia resulting from defect in insulin secretion, insulin action or both. Diabetes mellitus is a cluster of abnormal metabolic paradigm having common features of hyperglycaemia Type2 Diabetes mellitus has been shown to be a state of increased free radical activity³. Chronic hyperglycemic status favours auto-oxidation and the formation of advance glycation and products. There is a positive correlation between Adenosine deaminase and control of Type2 Diabetes Mellitus. Malondialdehyde (MDA) is the measure of lipid peroxidation of membrane lipids which is directly proportional to the oxidative stress on the membrane.

The correlation of Malondialdehyde (MDA) and Adenosine deaminase(ADA) levels in relation to control of Type2 Diabetes mellitus based on HbA1C level indicate that there is an auto-oxidation of glucose which results in persistent production of Malondialdehyde (MDA) and ROS which can release advance glycation end product(AGE) and advanced lipoxidation end products (ALE).

Keywords: *adenosine deaminase, malondialdehyde, glycosylated hemoglobin.*

GJMR-F Classification : *NLMC Code: WD 200*



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Adenosine Deaminase and Malondialdehyde Levels in Type-2 Diabetes Mellitus – a Short Study

Meenakshi Thakur^α & Dinesh Javarappa^ο

Abstract - Diabetes mellitus is a group of metabolic disease characterized by a state of chronic hyperglycemia resulting from defect in insulin secretion, insulin action or both. Diabetes mellitus is a cluster of abnormal metabolic paradigm having common features of hyperglycaemia Type2 Diabetes mellitus has been shown to be a state of increased free radical activity³. Chronic hyperglycemic status favours auto-oxidation and the formation of advance glycation and products. There is a positive correlation between Adenosine deaminase and control of Type2 Diabetes Mellitus. Malondialdehyde (MDA) is the measure of lipid peroxidation of membrane lipids which is directly proportional to the oxidative stress on the membrane.

The correlation of Malondialdehyde (MDA) and Adenosine deaminase(ADA) levels in relation to control of Type2 Diabetes mellitus based on HbA1C level indicate that there is an auto-oxidation of glucose which results in persistent production of Malondialdehyde (MDA) and ROS which can release advance glycation end product(AGE) and advanced lipoxidation end products (ALE).

A case control comparative study was done with Type2 Diabetes mellitus and normal controls at BMCH&RC, Chitradurga. According to the criteria, blood sample were collected under aseptic precautions and evaluation of Fasting Blood Sugar, HbA1C, Adenosine deaminase(ADA), along with RBC membrane ghost preparation and estimation of Malondialdehyde (MDA) were done.

In this study,

It was found that there was significant increase of Adenosine deaminase(ADA) in serum of Type2 Diabetes mellitus cases (40.06 ± 9.16) in comparison to control groups (21.21 ± 5.72) with a statistical significance of ($P < 0.001$) along with Malondialdehyde (MDA) of RBC membrane which was also significantly increased (4.23 ± 0.21) in Type2 Diabetes mellitus in comparison to normal control (3.28 ± 0.19) with a statistical significance of $P < 0.001$.

In our study, the positive correlation of membrane Malondialdehyde (MDA) and serum Adenosine deaminase(ADA) was established with 74% of cases of Type2 Diabetes mellitus falling into the HbA1C control group of 7 – 8% indicating that Adenosine deaminase(ADA), Malondialdehyde (MDA) levels are early indication of progressive diabetic changes.

Keywords: *adenosine deaminase, malondialdehyde, glycosylated hemoglobin.*

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I. INTRODUCTION

Diabetes mellitus is the major health problem affecting people all over the world. It is one of the most extensively investigated human diseases. Diabetes mellitus is a group of metabolic disease characterized by a state of chronic hyperglycemia resulting from defect in insulin secretion, insulin action or both.

During diabetes mellitus, persistent hyperglycemia produces free radicals specially ROS, for all tissues, glucose auto oxidation and protein glycosylation¹. Diabetes mellitus is a cluster of abnormal metabolic paradigm having common features of hyperglycaemia² Type2 Diabetes mellitus has been shown to be a state of increased free radical activity³. Chronic hyperglycemic status favours auto-oxidation and the formation of advance glycation and products. The generation of free radicals in the diabetic patients can be due to the following mechanism.

Hyperglycaemia leads to activation of NADPH oxidase, which is a multi-subunit enzyme, that catalyses O_2 formation by one electron reduction of O_2 using NADPH or NADH as electron donor.

Hyperglycaemia causes formation of advanced glycation End products (AGEs) as result of non-enzymatic reactions between intra-cellular glucose-derived dicarbonyl precursors with the amino group of both intracellular and extracellular proteins⁴. The AGEs stimulate receptors for advance glycation end products (RAGE). Their interaction is believed to initiate and aggravate the diabetic complications.

Furthermore, in the presence of superoxide dismutase, superoxide anion leads to formation of H_2O_2 which is responsible for the activating the signaling molecules leading to inflammation, cell growth, apoptosis and fibrosis⁵.

Malondialdehyde(MDA) is an end product of lipid peroxidation. Reactive oxygen species degrade polyunsaturated fatty acid, forming Malondialdehyde (MDA). This compound is a reactive aldehydes and is one of the many reactive electrophilic species that causes toxic stress in cells and form covalent protein adducts which are referred to as advanced lipoxidation end products (ALE)⁶.

Persistent hyperglycaemia in diabetes mellitus leads to increased formation of free radicals through various mechanisms. In the study Ayaz K. Mallick et al showed significant levels in increased erythrocyte membrane lipid peroxidation as increased Malondialdehyde (MDA) levels. The study also showed a significant positive correlation between the erythrocyte Malondialdehyde (MDA) levels and glycated haemoglobin. This is due to auto oxidation of glucose which causes persistent generation of ROS or Malondialdehyde (MDA) pointing towards the fact that prolonged hyperglycaemia appears to be a cause for increased oxidative stress which in turn leads to life threatening complications⁷.

Adenosine deaminase, an enzyme, which is present in red cells and the vessel wall catalyses the irreversible hydrolytic deamination of adenosine to inosine and 2- deoxyadenosine to 2- deoxyinosine. Inosine and 2-deoxyinosine are converted to hypoxanthine, xanthine and finally to uric acid. Adenosine deaminase (ADA) is considered as a good marker of cell mediated immunity. High lymphocyte Adenosine deaminase (ADA) activities were found to be elevated in diseases in which there is cell mediated immune response^{8,9}. In a study, Hoshino T et al reported elevated Adenosine deaminase (ADA) activity in the serum of Type 2 Diabetes mellitus patients⁸.

Adenosine deaminase (ADA) plays a crucial role in lymphocyte proliferation and differentiation and shows its highest activity in T-lymphocytes¹⁰.

II. MATERIAL AND METHODS

a) Inclusion criteria

- i. Patients with clinically proven Type2 Diabetes Mellitus who are on oral anti diabetic treatment with a known history of Diabetes Mellitus for a minimum period of 3 months and between 30-50 years were taken. The criteria of uncontrolled Diabetes mellitus was ascertained on the basis of HbA1C (>7%).
- ii. Controls are healthy individuals with age and sex matched without any major illness or on any medications.

b) Exclusion criteria

The Patients of the following criteria were excluded from the study:

- i. Patients with Type 1 Diabetes Mellitus.
- ii. Patients with history of smoking.
- iii. Patients with history of Hypertension.

III. METHODS

10ml of fasting blood sample were collected.

- Serum Adenosine deaminase (ADA) activity was estimated by enzymatic (Giusti.G.Galanti.B) method.

- RBC Membrane Malondialdehyde (MDA). was estimated by (Okhawa et al) after RBC ghost preparation by (Dodge et al) method.
- Glycosylated hemoglobin was estimated by Ion exchange chromatography.

The results were statistically analyzed with student 'T' test.

A case control comparative study was performed with Type2 Diabetes mellitus and normal subject according to criteria.

IV. RESULTS

The present study included a total number of 50 subjects including 25 Type2 Diabetes mellitus cases and 25 normal controls.

Table 1 narrates Malondialdehyde (MDA) levels in RBC membrane and serum levels of Adenosine deaminase (ADA) in Type2 Diabetes mellitus cases and normal controls.

Table 2 narrates HbA1C levels in Type2 Diabetes mellitus cases and normal controls.

V. DISCUSSION

Table 1 show the MDA content of RBC membrane of Type2 DM is significantly increased ($P < 0.001$) (4.23 ± 0.21) as compared to normal control groups (3.28 ± 0.19) which clearly exhibits free radical injury due to increased production of Malondialdehyde (MDA) resulting from persistent hyperglycaemia and lipid peroxidation and oxidative stress of the membrane. This is in accordance to the study of Rama Srivastan, Hattice Passagula and SA Mousa¹².

Table 1, also shows the Adenosine deaminase(ADA) level in the serum of Type2 DM is increased significantly (40.09 ± 9.72) as compared to normal control subjects (21.21 ± 5.72) in our study, which is in accordance with the study of Shivprakash M et al⁹, Misha sushant et al¹¹, and Hoshino T et al⁸ who observed in their study that Adenosine exerts potent metabolic effects acting through its receptors on various tissues. Adenosine stimulates glycogenolysis, gluconeogenesis and also been observed that hyperglycaemia is associated with increased level of Adenosine deaminase (ADA), which is one of the factor which leads to increased production of oxidative stress by generation of reactive oxygen species(ROS).

Adenosine deaminase(ADA) activity is suppressed, insulin sensitivity may be improved and cellular proliferation, inflammation and T-cell activity all of which are associated with the pathophysiology of insulin resistance can also be affected.

Therefore insulin resistance may have an important relationship with Adenosine deaminase(ADA) activity.

Table 2 shows the HbA1C levels in Type 2 Diabetes mellitus cases are more pronounced.

(7.73 ± 0.67) in the control group of HbA1c between 7-8% which is average control of Type2 Diabetes mellitus cases and there by 74% increase of cases with the above Diabetes Mellitus control

parameters with mean HbA1c being significant with $P < 0.001$ with an average blood glucose level of 168.5 mg/dl.

Table 1

PARAMETERS	Malondialdehyde (MDA) nmol/mg protein	Adenosine deaminase(ADA) IU/L	Fasting blood sugar mg/dl
Normal control n=25	3.28 ± 0.19	21.21 ± 5.72	70
Type 2 DM n=25	4.23*** ± 0.21	40.06*** ± 9.16	170

Note: 1. The number in parenthesis shows the number of samples.
2. Values are expressed as their mean ± Standard Deviation.
3. P value * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

Table 2

HbA1C	Cases no.	Percentage %	Control no.	Percentage %
< 7.0	0	0	25	100
7 - 8	17	74	0	0
8 - 9	05	20	0	0
9 - 10	03	6.0	0	0
Total	25	100	25	100
	7.73 ± 0.67		5.34 ± 0.59	

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Incidence of Squamous Cell Carcinoma in Karnataka

By Dr. Siraj Ahmed S., Dr. Aftab Begum., Dr. Shivaprasad P.N.
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Abstract- The skin is a complex and the largest organ of the body. Because of complexity a wide range of diseases can occur in the skin, like tumors from surface epidermis, which is most exposed part to harsh environment and its pollutants. Diagnosis of any skin tumors can be done by correlating clinical features and histological features. This study "incidence of squamous cell carcinoma in Karnataka" was carried out for 18 months, from November 2005 to April 2007. 54 skin tumors were studied. Out of these 54 cases, 14 were diagnosed as benign tumors and 40 as malignant tumors. The malignant tumors constituted 74.07%. Skin tumors constitute a small but significant proportion of patients with cancer. Unlike in the Western countries, SCC is the commonest histological variety. In this century, the carcinogenic potential of both chemicals and radiation cannot be ignored.

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Incidence of Squamous Cell Carcinoma in Karnataka

Dr. Siraj Ahmed S. ^α, Dr. Aftab Begum. ^σ, Dr. Shivaprasad P.N. ^ρ & Dr. Prabhu M.H. ^ω

Abstract- The skin is a complex and the largest organ of the body. Because of complexity a wide range of diseases can occur in the skin, like tumors from surface epidermis, which is most exposed part to harsh environment and its pollutants. Diagnosis of any skin tumors can be done by correlating clinical features and histological features. This study "incidence of squamous cell carcinoma in Karnataka" was carried out for 18 months, from November 2005 to April 2007. 54 skin tumors were studied. Out of these 54 cases, 14 were diagnosed as benign tumors and 40 as malignant tumors. The malignant tumors constituted 74.07%. Skin tumors constitute a small but significant proportion of patients with cancer. Unlike in the Western countries, SCC is the commonest histological variety. In this century, the carcinogenic potential of both chemicals and radiation cannot be ignored.

I. INTRODUCTION

The skin is a complex and the largest organ in the body. Because of its complexity a wide range of diseases can develop from the skin including tumors from surface epidermis, epidermal appendages and dermal tissue.¹

Histopathological study is one of the most valuable means of diagnosis in dermatology. But it has its own limitations; sometimes no definitive diagnosis can be made. In case of tumors, difficulties in diagnosis may also arise. For instance, distinction of squamous cell carcinoma from pseudoepitheliomatous hyperplasia or from keratoacanthoma is not always possible.²

The distinction between benign and malignant neoplasm are rather more difficult to define when they appear in skin than when found elsewhere³ and histopathological examination is frequently required to establish a definitive diagnosis.

Diagnosis of any skin tumors can be done by correlating clinical features and histological features, which can be supported by histochemistry, immunohistochemistry and electron microscopy.

First clear cut study of carcinogenesis was made by Sir Percival Pott in 1775. He discovered that soot is a carcinogen in chimney sweepers.⁴

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Sir Jonathan Hutchinson in 1887 recognized association between arsenic administration and subsequent development of both cutaneous and systemic malignancy. Hyde recognised ultraviolet light as a carcinogen.

Thus by the beginning of this century, the carcinogenic potential of both chemicals and radiation was recognised.

Yamagiwa and Ilchikawa in 1918 described experimental induction of skin cancer by chemical carcinogens. In 1945, Khanolkar described the Dhotei cancer.

II. METHODOLOGY

This study of "incidence of squamous cell carcinoma in Karnataka" was carried out for 18 months from November 2005 to April 2007.

a) Inclusion Criteria

Malignant tumors of epidermis (Squamous cell carcinoma) were included.

b) Exclusion Criteria

All non-neoplastic lesions and mesenchymal tumors of epidermis were excluded.

All benign tumors of epidermis were excluded.

Brief clinical history and findings were noted in each case. Nature of biopsy either incisional or excisional biopsy was noted.

Specimens were fixed in 10% formalin for 12-36 hours and the gross features were examined. Extent of sampling depended on the size of tumor as follows.

Further, tissue was processed and embedded in paraffin blocks. Sections of 5 to 6 micron thickness were taken and stained with hematoxylin and eosin and studied. Special stains were used wherever necessary.

According to WHO classification of skin tumors (1974)⁵ cases were classified. Infective conditions were omitted.

c) Statistical Methods Applied

1. Cross tabs Procedure
2. Chi-square test
3. Descriptive statistics

III. RESULTS

a) Squamous cell carcinoma

In the present study, twenty-seven cases were encountered, peak incidence was in fifth decade (33%)

with male preponderance (85%) and maximum number of cases occurred in the anogenital region (55%).

Table 1 : Location of squamous cell carcinoma

Site	Number of cases	Percentage
Head and neck	5	18.5
Extremities	7	26.0
External genitalia	15	55.5

$\chi^2 = 7.357; p < 0.25$ (Significant)

Table 2 : Age incidence of squamous cell carcinoma

Age in years	Number of cases	Percentage
40-49	9	33.3
50-59	7	26.0
60-69	6	22.2
70-79	5	18.5

$\chi^2 = 1.45; p < 0.767$ (Not Significant)

The peak incidence was seen in the 5th decade.

Table 3 : Sex incidence of squamous cell carcinoma

Sex	Number of cases	Percentage
Male	24	86
Female	4	14

Table 4 : Histologic types of squamous cell carcinoma

Type	Number of cases	Percentage
Squamous cell carcinoma	26	96
Verrucous carcinoma	1	4

$\chi^2 = 44.643; p < 0.000$ (Highly Significant)

Most of the tumors were between 0.5 to 6 cms. All squamous cell carcinomas were graded according to Broder's grading.

Fifteen cases were of Broder's grade-1, showing atypicality of cells, infiltration of dermis with more number of malignant epithelial pearls with occasional mitotic figures.

Six cases were of Broder's grade-2, showing more than 50% of differentiated squamous cells, with few epithelial pearls and occasional mitotic figures.

Five cases were of Broder's grade-3 showing more than 25% of differentiated squamous cells, with atypicality of cells, individual cell keratinization, an occasional epithelial pearl and a few mitotic figures.

Table 5 : Broder's grading of squamous cell carcinoma

Grade	Number of cases	Percentage
I	15	58
II	6	23
III	5	19
IV	0	0

IV. DISCUSSION

Skin tumors constitute a small but significant proportion of patients with cancer. Skin tumors are an ideal subject for study from clinical, morphological and therapeutic point of view and are so ubiquitous that they can affect people of all ages.

Total of 790 specimens of neoplasms were received, Out of these, tumors of epidermis, epidermal adnexae and melanogenic system were 54, constituting 6.83%.

In the present study it was observed that malignant epidermal tumors were the most common (61%), and others (39%).

In the present study, squamous cell carcinoma accounted for maximum number (67.5%) followed by others (32.5%).. Squamous cell carcinoma accounted for maximum number of cases of skin cancer by Chakravarthy RC et al.⁶ Budharaja SN et al.⁷ and Deo SV et al.⁸ as in the present study.

Table 6 : Comparative incidence of different malignant tumors of skin in India

Type of tumor	Budhraj SN et al. ⁷	Chakravarthy RC et al. ⁶	Deo SV et al. ⁸	Present study
Squamous cell carcinoma	49.02%	64.3%	55.8%	67.5%

Table 7 : Comparison of age distribution in squamous cell carcinoma

Age in years	Reddy DJ et al. ⁹		Present study	
	Number of cases	Percentage	Number of cases	Percentage
40-49	24	31.58	9	33
50-59	11	14.47	7	26
60-69	3	3.95	6	22
70-79	-	-	5	19

In the present study, most patients were males – 23 patients (85%) compared to females – 4 patients (15%). Even when penile cancers were excluded, the

incidence in males was higher in the present study than those reported by Chakravarthy RC et al.⁶ and Reddy DJ and Rao KV.⁹

Table 8 : Comparison of sex distribution in squamous cell carcinoma

	Male		Female	
	Number of cases	Percentage	Number of cases	Percentage
Chakravarthy RC et al ⁶	43	71.62	21	28.38
Reddy DJ and Rao KV ⁹	47	61.84	29	38.16
Present study	23	85	4	15

In the present study, 57% of squamous cell carcinomas occurred over the genitalia. This figure is high when compared to the series of Chuang CY et al.¹⁰ When anogenital cancers were excluded, squamous cell

carcinoma occurred commonly over the extremities, which was consistent with findings of Reddy DJ and Rao KV.⁹ Chakravarthy RC et al.⁶

Table 9 : Comparison of site distribution in squamous cell carcinoma

	Head and neck		Extremities		External genitalia	
	Number of cases	%	Number of cases	%	Number of cases	%
Reddy DJ and Rao KV ⁹	25	34	34	46	-	-
Chakravarthy RC and Choudhri ⁶	16	25	34	53	-	-
Present study	5	18.5	7	25	15	55.5

Most squamous cell carcinomas of the skin are well differentiated.¹¹ The present study correlate with the above studies having maximum number of squamous cell carcinomas (Grade I and Grade II) accounting for 82% of all cases.

V. CONCLUSION

Skin tumors constitute a small but significant proportion of patients with cancer. Unlike in the Western countries, SCC is the commonest histologic variety. Histopathological study is one of the most valuable means of diagnosis in dermatology and diagnosis of skin tumors can be done by correlating clinical features gross and histological appearances.

In some cases rare entities and problems of differential diagnosis encountered may solved with histochemical and/or electron microscopy. In this century, the carcinogenic potential of both chemicals and radiation cannot be ignored.

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Hypercomplementemia among Peridontal Disease Patients: Gingivitis

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Abstract- Fifty gingivitis patients were diagnosis by dentist. The age range were 20 – 49 years. Blood and saliva samples were collected from the test patients and ten apparently normal subjects as a control. Serum, whole and salivary proteins were subjected to C3 and C4 determinations. C3 and C4 concentration means of patients were higher than that for normal subject control. They approximate tow folds than that of control. Male approximate female patients levels of C3. Five combined C3 and C4 Hypercomplementemia out of 50 in both of the sexes. Six C4 and two C3 hyper complementemia were noted as single expression. Such hyper complementemia is of secondary type To infection and/ or inflammation responses of the gum.

Keywords: gingivitis, hypercomplementemia, saliva, serum, gum.

GJMR-F Classification : NLMC Code: QW 940



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Hypercomplementemia among Periodontal Disease Patients:Gingivitis

Ibrahim M S Shnawa ^α, Baha H Alamidi ^σ & Zainab Muhi Hameed ALFatlawi ^ρ

Abstract- Fifty gingivitis patients were diagnosis by dentist. The age range were 20 – 49 years. Blood and saliva samples were collected from the test patients and ten apparently normal subjects as a control. Serum, whole and salivary proteins were subjected to C3 and C4 determinations. C3 and C4 concentration means of patients were higher than that for normal subject control. They approximate tow folds than that of control. Male approximate female patients levels of C3. Five combined C3 and C4 Hypercomplementemia out of 50 in both of the sexes. Six C4 and two C3 hyper complementemia were noted as single expression. Such hyper complementemia is of secondary type to infection and/ or inflammation responses of the gum.

Keywords: *gingivitis, hypercomplementemia, saliva, serum, gum.*

I. INTRODUCTION

Complement system serves both of natural and adaptive immune responses, since properdin pathway serves in natural and classical pathway is operable in adaptive responses (1,2,3). The actual levels of complement components are different in different health state of vertebrate including man (4). From the diagnostic point of view there are three complement component concentration levels. The normocomplementemia, hypo and hyper complementemia (5,6) which corresponds to health, difficient and excess of complement concentration levels respectively. Among the Disease conditions that are associated with hyper complementemia is in infectious disease (7,8). The aim of the present work was to determine complement C3, C4 levels in both serum and saliva of the gingivitis patients.

II. MATERIAL AND METHODS

a) Patients (9) and controls

Fifty gingivitis patient from both males and females were clinical diagnosed by the specialized dentists (9)

Ten apparently normal mouth hygeine subjects were elected as control .

b) Blood sampling

Blood samples without anti-coagulants in a rate of 5ml in plane tubes were collected from both of patients and controls (10)

c) Sliva and Salivary Proteins

From both gingivitis patients and controls saliva were collected as recommended by salimeteres (10). Salivary protein was separated using 6% .polyethylene - glycol 6000 as protein precipitant (11)

d) Single Radial Immunodiffusion

Partigen diffusion plates containing anti C3 and anti C4 ready made, were used for determination of C3 and C4 both is in sera and saliva and salivary proteins (12)

e) Biometry

Mean, median, range as well a, standard errors were calculate as Steel et al (13)

III. RESULTS

a) Serum and Salivary C3

The C3 concentration means for gingivitis patients were higher than that of controls. Male and female patients were showing an approximate concentration mean levels. There were individual and age group wise variations noted among the gingivitis patients C3 concentration means Figure-1. There was one peak graph, such graph can be useful as a probe for human herd immunity among gingivitis patients. In comparison saliva, salivary proteins were negative for C3 of the patients and controls. Table 2,5 figure 1.

b) C4 serum and salivary concentrations

The C4 concentration means for patients and controls were determined. They higher in patients them in controls. Though saliva and salivary proteins were negative for presence of C4. Table 3 ,6,figure 2.

c) C3 and c4 serum hypercomplementemia

There were two male And there female gingivitis patients will combinedC3, C4 hyper complementemia. Two female patients with C3 hypercomplementemis and six C4 Hpercomplementemia in single expression from both sex Table 4.

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Table 1 : The study Gingivitis Patients

Gender	NO
Male	24
Female	26
Total	50

Table 2 : Age group distribution of the gingivitis patients

Age group	numbers
20 – 24	07
25 – 29	07
30 - 34	14
35 – 39	11
40 - 44	10
45 – 49	01
Total	50

Table 3 : The c3 concentration means in gingivitis patient stern

Gander	Mean c3 (Mg/dl)
Male	163 . 391
female	168 . 111
Total	165.7
SD : Male	27.36369
Female	20.814421
SE : Male	4.97322
Female	4.08204
t test ; P	0.76697
(r)	0.026397
Controls : Male	106.06
Female	90.95
Total	98.5

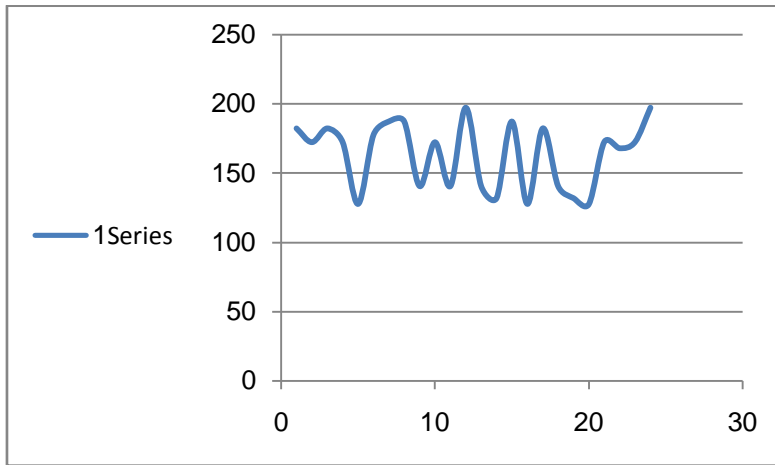
Table 4 : The C4 concentration means in the gingivitis patient

Gender	c4 concentration means	Mg/dl.
Male		47 . 316
Female		47 . 143
Total		47 . 249
SD:Male		3.18574
Female		3.1685
SE: Male		0.65029
Female		0.6337
t- test,P		0.98997
(r)		- 0.159734
Controls :Male		31.08
Female		33.2
Total		32.111

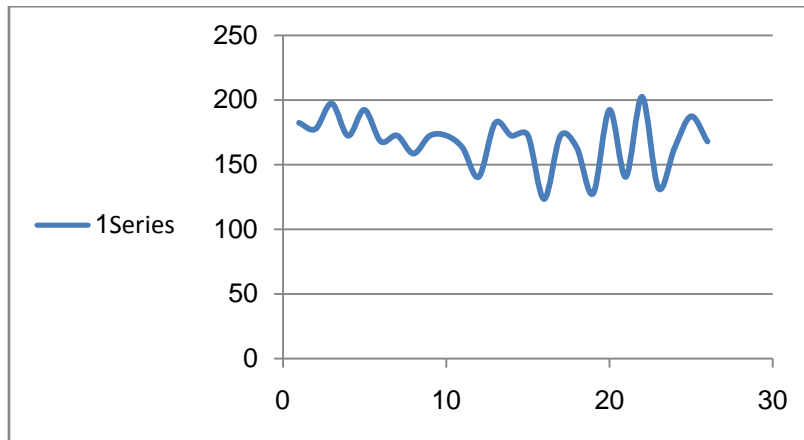
Table 5 : Hypercompelmentemia c3 , c4 among Gingivitis Patient

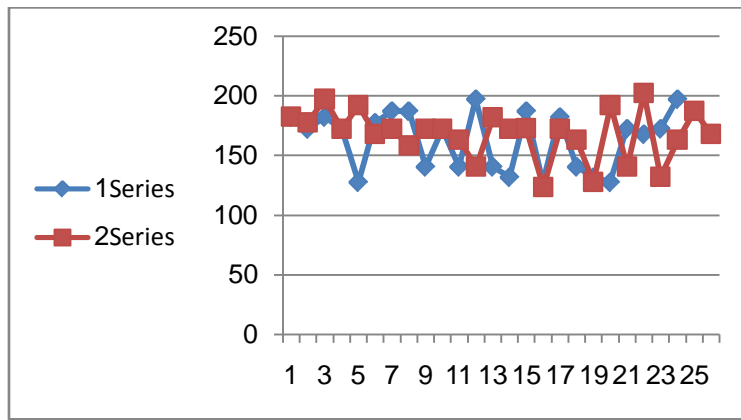
	Age	sex	con cont . Meams	
			c3	c4
Combined	36	F	197.4	50.3
	42	M	197.4	51.8
	27	M	197.4	50.3
	27	F	192.4	50.3
	27	F	205.5	53.4
Single	23	M	---	50.4
	32	M	---	50.3
	37	F	---	50.3
	29	M	---	50.3
	43	M	---	51.8
	38	M	---	50.3
	36	F	187.4	---
	35	F	192.4	---

(A)
Male



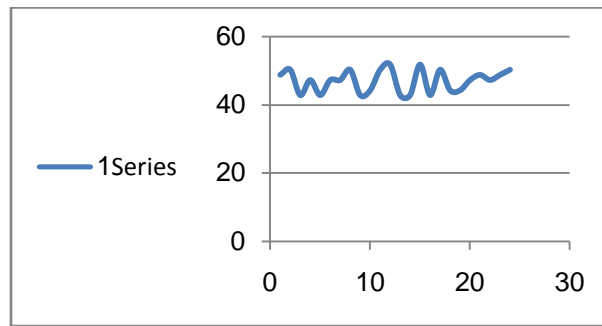
(B)
Female



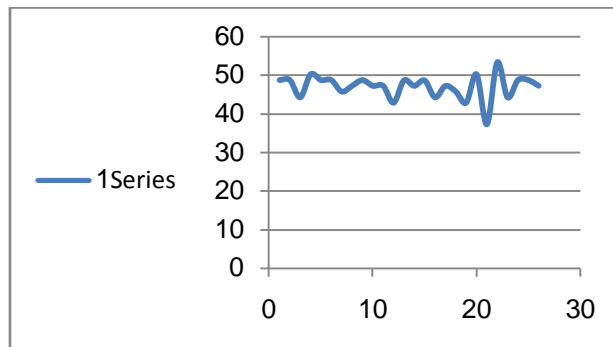


(C)
Male & Female

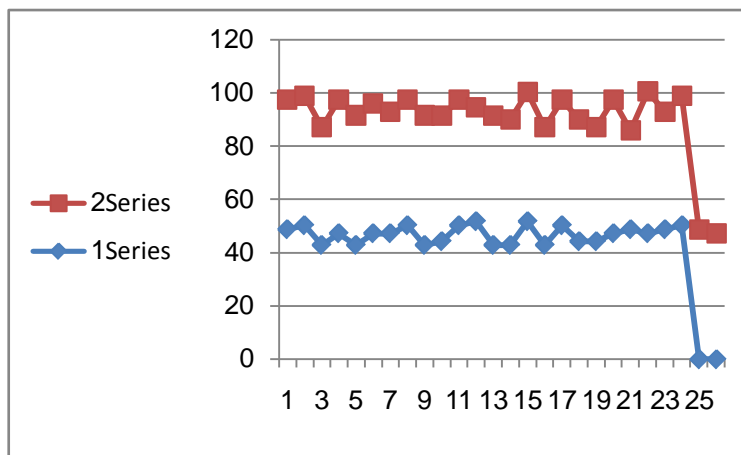
Figure 1 : The distribution of C3 among male(A),female(B) and total(C) the x axis is number of patients,the y axis is the concentration



(A)
Male



(B)
Female



(C)
Male & Female

Figure 2 : The C4 complement distribution among male(A),female(B)and total(C).The x axis is the concentration and the y axis is the number of patients



IV. DISCUSSION

The C3 and C4 concentration means were determined Tables 1-4, Figure I. Patients were showing higher C3, C4 concentration mean than controls. Male and female were with comparable concentration means. Saliva and salivary proteins were negative for both c3 and c4. c3 concentration means can be of use as a probe for gingivitis human herd immunity.

The antigens of the dental microbial pathogen on chronic low grade state facing the stomial mucosal immune compartment may lead to stimulation of c3, c4 in serum concentration reaching the limits of secondary hyper-complementemia (14,15). Thus, it may cause the formation of immune complex formation and deposition in the soft gum and periodontal tissues leading to raising c3, c4 in concentration in saliva (16) this nullification may influence the initiation of the activation of classical complement pathway, since c3 and c4 inter played a crucial role in such activation process (17,18,19,20).

Due to tissue micro-environmental signals the c3 and c4 synthesizing and secreting cells will either be enhanced to produce or down regulated to inhibit the catabolic and to anabolic synthesis pathways for both c3 and c4 to meet the tissue immune physiological need for complement proteins (18).

Thus, on conclusion one may sum up the findings as

1. C3, c4 concentration means are elevated in gingivitis patients in the systemic but not in mucosal compartment.
2. Single c3, single c4 and c3 – c4 combined hyper-complementemia were reported in gingivitis patients.
3. Serum c3, c4 concentration means were of comparable levels in both of male and female patients.
4. C3 levels among gingivitis patients may be of use as a probe for gingivitis human herd immunity.

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The Prevalence of Consistent Condom use among Western Command Force in Bahir Dar City, North West Ethiopia

By Nega Adamtie & Zelalem Alamrew

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Abstract- Background: Despite recent declines in global HIV/AIDS mortality, HIV/AIDS was still the fifth leading cause of global DALYs in 2010. The distribution of HIV/AIDS burden is not equal across regions and different population segments. Sub Saharan countries are disproportionately affected from the disease despite. In 2012; roughly 25 million people were living with HIV in the region, accounting for nearly 70 percent of the global total. People in the military are part of a social group with particular risk factors of isolation, often being far from home, working in extremely stressful environments, so that are at higher risk of sexual transmitted diseases including the non curable disease, AIDS.

Objectives: To assess consistent condom use and associated factors among military personnel in Western Command in Bahir Dar City, in 2013.

Methods and Materials: A cross-sectional study was conducted in November 2013 among 898 military personnel in Western command in Bahir Dar City, North west Ethiopia. Self-administered questionnaire was used to collect the data. The data were analyzed using univariate, bivariate, and multivariate analyses with SPSS version 16 software package.

GJMR-F Classification : NLMC Code: WC 140



THE PREVALENCE OF CONSISTENT CONDOM USE AMONG WESTERN COMMAND FORCE IN BAHIR DAR CITY NORTH WEST ETHIOPIA

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The Prevalence of Consistent Condom use among Western Command Force in Bahir Dar City, North West Ethiopia

Nega Adamtie ^α & Zelalem Alamrew ^σ

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Results: This study revealed that the prevalence of consistent condom use among Western command force in Ethiopia was 59.4%. Consistent condom use among armed force of western command was significantly associated with sex of the respondents (AOR = 2.05, 95% CI = (1.16, 3.63), educational status of the armed force (AOR = 0.63, 95% CI = (0.45, 0.89) and (AOR= 0.55, 95% CI = (0.34, 0.91) and Marital status of the respondents (AOR= 1.51, 95%CI= (1.07, 2.15).

Conclusion: The overall prevalence of consistent condom use among Western command in Ethiopia was very low and the main predictors of consistent condom use were found to be sex, educational level, and marital status. Therefore, interventions targeting sex, educational status and marital status are recommended.

1. INTRODUCTION

Despite recent declines in global HIV/AIDS mortality, HIV/AIDS was still the fifth leading cause of global DALYs in 2010. The distribution of HIV/AIDS burden is not equal across regions and

different population segments. Sub Saharan countries are disproportionately affected from the disease despite accounting for just 13 percent of the world's population; in 2012; roughly 25 million people were living with HIV in the region, accounting for nearly 70 percent of the global total. In the same year, there were an estimated 1.6 million new HIV infections and 1.2 million AIDS-related deaths as a result; the epidemic has had widespread social and economic consequences, not only in the health sector but also in education, industry and the wider economy (1, 2).

People in the military are part of a social group with particular risk factors- isolation, often being far from home, working in extremely stressful environments, and lacking independent decision making power. So that they are at higher risk of sexual transmitted diseases including the non curable disease, AIDS (3).

Even though limitation on information regarding military forces of any country, evidences indicated that military personnel are a population group at special risk of exposure to sexually transmitted diseases including HIV/AIDS. In peacetime, STD infection rates among service members are generally 2 to 5 times higher than among civilian population. In time of conflict, the differences can be 50 or more times greater (4).

The armed forces in many high risks for conflict countries are vulnerable to STIs including HIV and factor including age of soldiers, their related high level of sexual activity, a military culture that promotes risk taking behaviors, and the usual availability of commercial sex workers near army camps, and the length periods of soldiers are away from home (5, 6).

Despite armed forces is among high risk group of sexual transmitted disease including HIV, evidences indicated that about 20% of military personnel use condom sometimes and 8.8% never used condom in their sexual intercourse. The study further indicated that 8% of soldiers reported sexual contacts with partners with high risk of sexual behavior, whilst 0.37% of them reported homosexual and bisexual contacts (7).

According to the suggestions of WHO, a combination of approaches are very important to prevent the sexual transmission of HIV, including correct and consistent condom use, reduction in the number of sexual partners, HIV testing and counseling, delaying

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sexual debut, treatment for STIs and male circumcision(8).

Condom is a barrier method put on erect penis and physically blocks ejaculated semen from entering the body of a sexual partner during sexual interaction. Condoms, when used correctly and consistently, are highly effective in preventing HIV and other sexually transmitted infections (STIs). A large body of scientific evidence shows that male latex condoms have an 80% or greater protective effect against the sexual transmission of HIV and other STIs (9).

II. OBJECTIVES

a) General objective

To assess magnitude consistent condom use and its associated factors among military personnel of Western Command in Ethiopia.

b) Specific objectives

1. To determine the prevalence of consistent condom use.
2. To identify factors associated with consistent condom use.

III. METHODS AND MATERIALS

The study was conducted in one of the Federal Democratic Republic of Ethiopia (FDRE), Ministry of Defense, Western Command, in Northern Ethiopia, in Amhara National Regional States. Bahir Dar, the capital city of Region, is about 565 kms away from Addis Ababa.

The Western Command has one large hospital equipped with different health professionals; the hospital gives both preventive and curative activities for the soldiers. In the western command, there are one primary school and institute in which solders are taking training Cross sectional quantitative study was used among military personnel of Western command or Kifle Tore 43 in November 2013.

a) Source population

The eligibility criteria for the study were all members of the FDRE Western Command Ethiopian Army and working in the compound as soldiers, officers and non officers

b) Sample size determination

The sample size was determined using single population proportion formula. The proportion of consistent condom use among study subjects was estimated to be 50%.

The following assumptions were used: level of confidence 95%, a 5% marginal error. So based on these assumptions, the sample size was calculated as:

$n = (Z_{\alpha/2})^2 p (1-p)/d^2$. Where; n = the minimum sample size needed, P= proportion of consistent

condom use (50%), $d =$ absolute precision = 0.05 and $Z_{\alpha/2} = 1.96$ at confidence level 95%. Then, $n = (1.96)^2 (0.5 \times 0.5) / (0.05)^2 = n = 385$. The final sample size with multistage design effect of 2.2 and 10% allowance for data incompleteness, the number of study subjects included in the study were $[385 \times 2.2] + 10\% [385 \times 2.2] = 932$

c) Sampling procedure

Multi-stage sampling technique was used, the Western Command contain four Kifle Tore and one the four Kifle Tore was selected randomly. Regiments also selected from the selected Kifle Tore and the respondents were selected using a simple random sampling technique.

d) Data collection procedure

Data was collected using a self administered structured questionnaire which was adopted and modified from reviewed literatures (10 -12). Four data collection facilitators and one supervisor, who were working at the Western Command compound, were recruited.

Data collector facilitators and the supervisor were trained for one and half days on procedures, techniques and ways of collecting the data. The questionnaires were initially prepared in English and then translated in to Amharic and also back translation to English was done by other translator to check for the accuracy of the questionnaire.

The questionnaires were pre-tested prior to the actual data collection in the study area among units not included in the main survey. The result of the pre-test was discussed and some corrections and changes were made on the questionnaires before the actual data collection. During the actual data collection, the data collection facilitators distributed the questionnaires to the respondents, under the supervision the respondents were filled the questionnaires returned to the data collection facilitators. The gathered questionnaires in the same day of completion returned to their supervisor thereby the supervisor and the principal investigator check the numbers and completeness of the questionnaires

e) Data processing and Analysis

Data were double-entered onto the EPI-data Version 3.1 software by defining legal values for each variable and setting skip patterns. The double-entered data were validated and exported to SPSS version 16 software package. Univariate and bivariate analysis were computed to see the frequency distribution and to test whether there is association/ difference/ between consistent condom use and selected independent variables. Factors associated with consistent condom use at bivariate were identified and the variables with p-value of 0.20 and less were taken to multivariable

analysis and the model was built with backward elimination. Finally, the p-values less than 0.05 were considered statistically significant.

f) *Ethical Consideration*

Ethical clearance was obtained from the Ethical Committee of University of Gondar and Addis Continental Institute of Public Health. Official permission was obtained from Amhara National Regional Health Bureau different experts and Department Head of the Western Command. The respondents were informed about the objective and purpose of the study and oral consent was obtained from each respondent. Confidentiality was assured by not writing the name of the respondents' on the questionnaire and information was recorded anonymously.

IV. RESULTS

a) *Socio-Demographic Characteristics of Western command force Bahir Dar, Ethiopia, November 2013.*

According to the current study, out of the total 932 respondents filed the questionnaire, 35 responses

were excluded because of gross incompleteness and resulted a response rate of 96.2%. About half of the study subjects 463 (51.6%) had soldiers rank followed by other non-officer rank and 65 (7.2%) were officers in rank. Majority of the military personnel 842 (93.9%) were male, with a mean age of 27 and standard deviation of 6.9 years. Regarding the age of the respondents 41.6%, 26.6%, and 31.7% were in the age group of 18 - 24 years, 25-30 years and above 31 years of age respectively.

Concerning the educational status of the respondents, 243 (27.1%) have attained primary 1-8 grade level, 545 (60.8%) had secondary (grade 9 – 12), while the remaining 109 (12.2%) had tertiary (above 12) education. A Majority of the study subjects 626 (69.8%) were Orthodox followed by Muslim 156 (16.9%) by religion. About half 469 (52.3%) demonstrated to earn a monthly income below 1200 Eth. Birr while about 151 (16.8%) had monthly income above 1600 Eth. Birr. The data indicated that 289 (32.2%) of the study subjects were married, 583 (65%) were never married while the other 25 (2.8%) were divorced, separated or widowed (See table 1).

Table 1 : Socio-demographic characteristics of the study subject at Western Command Bahir Dar, Ethiopia, November, 2013

Variables	Frequency n = 897	Percent (%)
Sex		
Female	55	6.1
Male	842	93.9
Age		
18 – 24	373	41.6
25 – 30	239	26.6
31 – 35	134	14.9
>35	151	16.8
Educational status		
Primary school (1-8)	243	27.1
Secondary school (9-12)	545	60.8
Tertiary (>12)	109	12.2
Marital Status		
Married	289	32.2
Single	583	65
Divorced, Widowed & Separated	25	2.8
Monthly Income		
800 – 1200	469	52.3
1201 – 1600	277	30.9
>1600	151	16.8
Military Rank		
Soldiers	463	51.6
Others Ranks	369	41.1
Officers	65	7.2
Military Services		
< 11	574	64
≥ 11	323	36



b) *Alcohol and substance use among western command force*

The study revealed that all respondents have had alcohol in their life time. Of these respondents 632 (70.8%) of them took from time to time. Regarding frequency of alcohol intake in the last four weeks, 3.5%, 32.9%, 34.7%, and 28.8% were taking every day, once a week, less than once a week, and occasionally respectively.

Out of respondents, who took alcohol 426 (50.1%) were never drank until intoxication and 323 (36.0%) were drinking until being intoxicated.

Respondents further reported that 325 (36.2%) chew Khat, 50 (5.6%) had taken Shisha/Gaya, 4 (0.4%) had taken Hashish, 3 (0.3%) had taken Benzene, 6 (0.7%) and taken Cocaine for the last 12months (table 2).

Table 2 : Alcohol and other drug use of the study subject at Western Command Bahir Dar, Ethiopia, November, 2013

Variable	Frequency	Percent (%)
Ever drunk alcoholic beverage (like Tela, Teje, Beer, Arkie...)		
Never drink		
Once or twice		
From time to time	48	5.4
Drink daily	178	19.8
Total	632	70.8
	39	4.3
	897	100
Frequency of taking alcohol in the last four weeks		
Every day		
Once a week	30	3.5
Less than once a week	280	32.9
Occasionally	295	34.7
Total	245	28.8
	850	100
Ever had drank heavily until intoxication		
Never drank	426	50.1
Once to twice	323	38.0
Many times	101	11.9
Total	850	100

c) *Sexual History and Number of Partners among Western command armed force, Bahir Dar Ethiopia, November 2013*

About 892 (99.4%) soldiers had ever sexual intercourse in their life time, of these 785 (87.5%) started their first sex below the age of 20 years, and 112 (12.5%).

The mean and standard deviation of at which respondents sexually debuted was 18.67 ± 2.236 . About 67.7% of the respondents have had more than one sexual partner in their life time. Moreover, this study revealed that 37.7% of the respondents had more than one sexual partner in the last twelve months (table 3).

Table 3 : Sexual History and Number of Partners of the Respondents at Western Command, Bahir Dar, Ethiopia, November, 2013

Variables	Frequency	Percent (%)
Age at first sexual intercourse		
Below 20	785	87.5
20 - 29	11.2	12.5
Mean \pm SD	18.67 \pm 2.236	
Number of sexual partners in your life time		
One	287	32.3
Two and above	602	67.7
Number of sexual partners in the last 12 months		
One	554	62.3
Two and above	335	37.7

d) *Condom use*

According to this study, about 874 (97.4%) had used condoms in their life time, 758 (84.5%) used in the last 12 months, and 565 (63%) had used condoms in the last sexual intercourse.

The prevalence of consistent condom use among the western command force of Ethiopia was found to be 59.4% in the last twelve months.

Consistent condom use was depicted by 495 (55.2%) of the respondents who had intercourse with prostitutes, by 438 (48.8%) of those who had intercourse with non-regular partners, by 101 (11.3%) of those who have intercourse with unmarried regular partners and by 50 (5.6%) of those having intercourse with their married regular partners.

Among the military personnel who had used condom, majority 543 (60.5%) mentioned that it was by their own suggestion, 169 (18.8%) reported that their partners suggested, and 321 (35.8%) said that it was a joint decision of the partners.

The reasons for not using condoms were asked and it was due to lack of satisfaction, due to its embracing nature to ask and buy condom, some also mentioned due to their love towards their partner. Some also mentioned their religion restricts them, some do not think about condom, condom is not necessary to use, and condom bursts (table 4).

Table 4 : Sexual history, types of partners and Condom use of the Respondents at Western Command, Bahir Dar, Ethiopia, November, 2013

Variables	Frequency	Percent (%)
Condom use in the first sex		
Yes	548	61.1
No	349	38.9
Ever use condom		
Yes	874	97.4
No	23	2.6
Condom use in the last 12 months		
Yes	758	84.5
No	139	15.5
Condom in the last month?		
Yes	622	69.3
No	275	30.7
Condom use in the last sexual intercourse		
Yes	565	63
No	332	37
Frequency of condom use in the last twelve months		
Not consistent	364	40.6
Consistent condom use	533	59.4

e) *The association between predictor variables and consistent condom use among Western Command, Bahir Dar, Ethiopia, November 2013*

In a multivariate logistic regression analysis, variables which were having significant association in the crude analysis were fitted to the multivariate model to determine independent predictors of consistent condom use. Hence the odds of consistent condom use were about two fold more likely in males than females. (AOR = 2.05, 95%, CI = (1.16, 3.63) and being secondary school and tertiary school level were less likely use condom consistently than primary school education with (AOR = 0.63, 95%, CI = (0.45, 0.89)) and (AOR = 0.55, 95%, CI = (0.34, 0.91) respectively.

Marital status was the other significantly associated with consistent condom use among the respondents, accordingly the odds of being unmarried and divorced, separated and widowed were more likely to use condom consistently compared to those who were married.

Moreover, individuals who were single in marital status were more likely to use condom consistently compared to those were married (AOR= 1.51, 95%CI= (1.07, 2.15) (table 5)

Table 5 : Multivariate analysis of some selected characteristics and consistent condom utilization at Western Command, Bahir Dar, Ethiopia, November 2013

Variables	Consistent condom use		Crude OR (95% CI)	Adjusted OR (95% CI)
	Yes	No		
Sex				
Female	23	32	1.00	1.00
Male	510	332	2.14 (1.23, 3.72)*	2.05 (1.16, 3.63)*
Age				
18-24	228	145	1.00	1.00
25-30	149	90	1.05 (0.75, 1.47)	1.25 (0.85, 1.84)
31-34	79	55	0.91 (0.61, 1.37)	1.09 (0.64, 1.85)
>35	77	74	0.66 (0.45, 0.97)*	0.88 (0.49, 1.57)
Educational status				
1-8 (Primary school)	163	80	1.00	1.00
9-12 (Secondary school)	313	232	0.01 (0.48, 0.85)	0.63 (0.45, 0.89)*
>12 (Tertiary)	57	52	0.54 (0.34, 0.85)*	0.55 (0.34, 0.91)*
Marital Status				
Married	150	139	1.00	1.00
Single	369	214	1.59 (1.20, 2.13)*	1.51 (1.07, 2.15)*
Divorced, widowed & Separated	14	11	1.18 (0.52, 2.69)	1.16 (0.49, 2.69)
Monthly income				
800 -1200	296	173	1.00	1.00
1201-1600	161	116	0.81 (0.59, 1.09)	0.85 (0.58, 1.25)
>1601	76	75	0.59 (0.41, 0.86)*	0.80 (0.48, 1.35)
Types of partners				
Married Regular	50	847	1.00	1.00
Non regular	438	459	1.54 (1.09, 2.18)	0.67 (0.47, 0.96)*
Unmarried regular	101	796	1.11 (0.66, 1.87)	0.92 (0.55, 1.55)
Prostitutes	485	402	1.41 (0.99, 2.01)	0.73 (0.51, 1.04)
Numbers of partners in your life time				
one	16	11	1.00	1.00
Two and above	517	351	1.01 (0.46, 2.21)	0.98 (0.42, 2.26)
Numbers of partners in 12 months				
One	159	128	1.00	1.00
Two and above	369	233	1.28 (0.96, 1.69)	1.06 (0.78, 1.45)

V. DISCUSSION

The overall prevalence rate of consistent condom use among soldiers 59.4% in this study. This magnitude was lower than study conducted in Northern Command front, where it was 71.0% (13). The major explanation for such discrepancy may be difference in the variation of sampling techniques of the two studies and may be due to time difference of research.

The current study was also not in accordance with a finding of BSS 2005 from the Ground Forces, where the prevalence of consistent condom use with non-regular partners was 71.8% (14). The discrepancy might be due to different reasons including variation in sampling technique. However, the prevalence of consistent condom use in this study was higher than a

study done in Lao People’s Democratic Republic military personnel where the prevalence of 51% reported (15). Besides, the current prevalence is different from a study done among Cameroonian soldiers and consistent condom use was reported by 21.6% (16).

Consistent condom use was uncommon in Nigerian Soldiers and found only 16-20%, with no difference between genders (17) and it was less than the prevalence of the study area, this might due to the availability of condoms by the government and other stockholders and might be the creation of awareness through IEC with enough and appropriate information on STI including HIV/AIDS and use of condoms consistently.

According to this study there were factors significantly associated with consistent condom use.

Accordingly the odds of consistent condom use was twofold more likely in males than females (AOR = 2.05, 95% CI = (1.16, 3.63). This study was in line with other studies where the prevalence of consistent condom use was higher among males compared to females among Cameroonian armed forces and same for civil population too where women females were less likely to report condoms with their sex partners than men (18, 19).

Besides, our finding was in line with a study done in Nigeria where male gender was significantly associated with consistent condom use among armed force Personnel (20).

Moreover, the findings of this study indicated that only 41.8% of female soldiers were consistently using condom, which was much less than their counter parts in Nigeria (21). Different socio cultural reasons might contributed for the difference in using condom consistently.

According this study educational status of the armed forces was also significantly affecting consistent condom use among western command; accordingly the odds of consistent condom use among soldiers with secondary school was 0.63 times less likely and (AOR= 0.63, 95%, CI = (0.45, 0.89), with tertiary school level was 0.55 times less likely (AOR = 0.55, 95%, CI = (0.34, 0.91) than soldiers with primary school education. However, a study in Swaziland Defense Force had revealed that, militaries with secondary school education were more likely to use a condom with a regular partner (22). The probable reason that soldiers with secondary and tertiary education were less likely to use condom consistently compared to those with primary education might be due to armed forces with secondary and above were mostly older and may be resistant to change and failed to use condom than individuals with primary education where most of them were younger, who are may be friendly to accept ideas and advices to prevent sexual transmitted diseases and HIV/AIDS.

This study further indicated that marital status was significantly associated with consistent condom use among armed forces, the odds of consistent condom use was higher among single, divorced and windowed personnel compared to those married. Accordingly, consistent condom use by unmarried military personnel in this study was found to be 65%, whereas it was 87.66% among unmarried military personnel of Cameroon (18).

Evidences indicated that most of the time military personnel were not using condoms during sexual interaction with their partners and vulnerable to HIV, because of unfaithfulness, dishonest creating mistrust between the partners (23), however; respondents from this study revealed that reasons for not using condoms were due to decrement in satisfaction while using condom, its embracing nature to

ask and buy condom, others also mentioned that their love towards their partners. Besides others mentioned that they failed to use condom in their sexual intercourse because of religious reasons, evidences from other studies also supports that religion is one of factors that affect the sexual behaviors of individuals (24).

VI. CONCLUSIONS

The study demonstrated the presence of considerable gaps in the consistent condom use by respondents. The overall prevalence of consistent condom use by the respondents was 59.4%. The important factors that were significantly associated with consistent condom use among western command force were sex, educational and marital status the odds of non-regular partners were less likely use consistent condom than married regular one.

However; consistent condom use was not associated with age, monthly income, military ranks, military services, and alcohol and drug use.

a) Recommendation

Based on the findings of the study and understanding the nature of the militaries personnel:

1. The prevalence of consistent condom use in the study area was low, therefore the Policy makers and concerned bodies should designs appropriate programs and strategies on consistent condom use.
2. Western Command health department should introduce condoms in the compound and Strengthening information, education and communication activities through Medias, news papers and peer group discussions collaborating with DKT-Ethiopia.
3. Concerned bodies better focus on interventions that deal with sex, educational level, and marital status need to be focused

b) Competing interest

We don't have any competing interest.

c) Contributors

ZA was revised the research proposal, report, and prepared the manuscript and NA was conceptualized the research problem, report writing and manuscript preparation.

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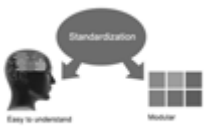
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(c) Up to ten keywords, that precisely identifies the paper's subject, purpose, and focus.

(d) An Introduction, giving necessary background excluding subheadings; objectives must be clearly declared.

(e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition; sources of information must be given and numerical methods must be specified by reference, unless non-standard.

(f) Results should be presented concisely, by well-designed tables and/or figures; the same data may not be used in both; suitable statistical data should be given. All data must be obtained with attention to numerical detail in the planning stage. As reproduced design has been recognized to be important to experiments for a considerable time, the Editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned un-refereed;

(g) Discussion should cover the implications and consequences, not just recapitulating the results; conclusions should be summarizing.

(h) Brief Acknowledgements.

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