



EFFECT OF VITAMIN D SUPPLEMENTATION VERSUS TAURINE ON THE ALVEOLAR BONE OF NICOTINE -TREATED ALBINO RATS

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

اللَّهُ
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الْعَظِيمِ

سورة البقرة (٣٢)

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Dedication

*To my beloved **Mother**,*

The mate of my soul, and the friend of my life,

*To the soul of my dear great **Father**,*

*To my supporting, lovely husband, **Ahmed**,*

*To my sweet sons **Ali & Jana**,*

*To my fascinating brothers **Ahmed & Mohammed**,*

*To my dear Grandfather **Ibrahim** and my dear*

*Grandmother **Nazik**,*

To all the people who I love

I dedicate this work

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CONTENTS

	Page
INTRODUCTION & REVIEW OF LITERATURE	1
AIM OF THE STUDY	40
MATERIALS AND METHODS	41
RESULTS.....	48
DISCUSSION	108
SUMMARY	127
CONCLUSIONS & RECOMMENDATION	132
REFERENCES.....	133
ARABIC SUMMARY	-

LIST OF ABBREVIATIONS

AGEs	Advanced glycation end products
ATP	Adenosine triphosphate
B-L	Bucco-lingual
BMC	Bone mineral content
BMD	Bone mineral density
BW	Body weight
Ca²⁺	Calcium Ions
CsA	Cyclosporine A
CSH	Glutathione
CTGF	Connective tissue growth factor
DXA	Dual energy X-ray absorptiometry
Exp.G.I	Experimental group I
Exp.G.II	Experimental group II
Exp.G.III	Experimental group III
M-CSA	Macrophage colony-stimulating factor
M-CSF	Macrophage colony stimulating factor
M-D	Mesio-distal
MKs	Megakaryocytes
MMP-1	Matrix metalloproteinases-1
MMP-13	Matrix metalloproteinases-13
MMP-2	Matrix metalloproteinases-2
MMPs	Matrix metalloproteinases
NF-κB	Transcription factor-Kappa B
OPG	Osteoprotegrin
PTH	Parathyroid Hormone
RNKL	Receptor Activator of Nuclear Factor κ B ligand
ROS	Reactive Oxygen Species
TauCl	Taurine chloramines
TAUT	Taurine Transporter
TNF	Tumor Necrosis Factor
TRAP	Tartrate-Resistant Acid Phosphatase
VDR	Vitamin D receptor
Vit D	Vitamin D
1,25 (OH)₂D	1, 25 (OH) ₂ -dihydroxy vitamin D ₃

LIST OF TABLES

Table No.	Title	Page
1	Summary of H&E Results for all groups.....	74
2	Summary of Immunohistochemical results for all groups	87
3	Summary of Masson trichrome stain for all groups	99
4	showing the mean $\pm$ the SD of area percentage of the mandibular trabecular bone in Exp.G.I, Exp.G.II, Exp.G.III and their relation to the control	101
5	showing the mean $\pm$ the SD of number of osteocytes in Exp.G.I, Exp.G.II, Exp.G.III groups and their relation to the control	103
6	showing the mean $\pm$ the SD of number of megakaryocytes in the nicotine, nicotine + vitamin D and nicotine + taurine treated groups and their relation to the control	105
7	showing the mean $\pm$ the SD of BMD in the nicotine, nicotine + vitamin D and nicotine + taurine treated groups and their relation to the control.....	107

LIST OF FIGURES

Fig. No.	Title	Page
1	B-L section of the control group showing the alveolar bone proper with smooth socket wall (arrow) lined by osteoblasts (Ob) and showing Zukerkandle and Hershfeld canals (ZH) (H&E X 200)	51
2	B-L section of the control group showing compact bone with osteocytes (Oc) surrounded by lamina limitans (arrows) and arranged around Haversian canals (Hc) (H&E X 400)	51
3	B-L section of the control group showing osteocytes arranged in parallel lamellae (H&E X 400).....	52
4	B-L section of the control group showing trabecular bone with active osteoblasts (Ob) lining the marrow cavities and some osteoblasts are entrapped in osteoid (H&E X 400)	52
5	M-D section of the control group showing few reversal lines (arrows) and flattened osteoblasts (Ob) (H&E X 400)	53
6	M-D section of the control group showing resting lines (H&E X 400).	53
7	M-D section of the control group showing osteoclasts (OC) in Howships lacunae (arrows) (H&E X 400)	54
8	B-L section of the control group showing the periosteum (arrow) (H&E X 400)	54
9	M-D section of the control group showing well-defined megakaryocytes (MK), few lipid droplets (L) and blood vessel (bv) in bone marrow (H&E X 400).....	55
10	B-L section of Exp.G.I showing scalloped and irregular socket wall (arrows) lined by osteoblasts (Ob) (H&E X200)	58
11	B-L section of Exp.G.I showing apparent widening of Zukerkandle and Hershfeild canals (ZH) and scalloped areas of bone resorption (arrows). Many osteocytes reveal shrunkin nuclei (n) (H&E X 200).....	58
12	B-L section of Exp.G.I showing shrunken nuclei (n), empty lacunae (e) and empty Haversian canals (Hc) (H&E X 400)	59

Fig. No.	Title	Page
13	M-D section of Exp.G.I showing apparent widening of marrow cavities (blue arrows) and areas of bone resorption (black arrows) (H&E X 200).....	59
14	M-D section of trabecular bone of Exp.G.I showing marked thinning of bone trabeculae (BT) and marked widening of marrow cavities (M) (H&E X 200)	60
15	A higher magnification of trabecular bone of Exp.G.I showing irregular thin bone trabeculae (BT) associated with osteoclasts (OC). The majority of osteoblasts (Ob) appear flattened (H&E x 400).....	60
16	M-D section of trabecular bone of Exp.G.I showing many reversal lines (arrows) (H) (H&E X 400)	61
17	M-D section of Exp.G.I showing marked reduction of the periosteum with many flattened osteoblasts (arrow) (H&E X 400)	61
18	M-D section of bone marrow cavity of Exp.G.I showing ill defined megakaryocytes (MK) and increases lipid droplets (L) (H&E X400)	62
19	B-L section of Exp.G.II showing socket wall with slight irregular areas (arrows), lined by osteoblasts (Ob) and few empty lacunae (e) (H&E X 200).....	65
20	B-L section of compact bone of Exp.G.II showing many osteocytes (Oc) surrounded by lamina limitans (arrows) and apparently normal Haversian canals (Hc). Some osteocytes show shrunken nuclei (n) (H&E X 400)	65
21	M-D section of trabecular bone of Exp.G.II showing apparent widening of marrow cavities (arrows) and Zuckerkandle and Hershfeld canals (ZH) (H&E X 200).....	66
22	M-D section of Exp.G.II showing osteoid (blue arrows) and active osteoblasts (black arrows) lining the marrow cavities (H&EX 400)	66
23	M-D section of Exp.G.II showing many resting lines (arrows) (H&E X 400).....	67
24	M-D section of Exp.G.II showing well defined megakaryocytes (MK) some lipid spaces (L) in the bone marrow (H&E X 400).....	67

Fig. No.	Title	Page
25	B-L section of Exp.g.III showing slight undulation of the socket wall (arrows) lined by osteoblasts (Ob), few empty lacunae (e) and almost normal Haversian canals (Hc) (H&E X 200)	70
26	M-D section of Exp.g.III showing compact bone with osteocytes (Oc) surrounded by lamina limitans (arrows) (H&E X 400)	70
27	M-D section of Exp.g.III showing apparent widening of some marrow cavities (arrows), some osteocytes with shrunken nuclei (n) (H&E X 200)	71
28	A higher magnification of the previuos section showing osteoid (arrow) and active osteoblasts (Ob) lining the marrow cavity (H&E X 400)	71
29	B-L section of Exp.G.III showing apparent reduction of the periosteum (arrows), some osteocytes with shrunken nuclei (n) and few empty lacunae (e) (H&E X 400)	72
30	M-D section Exp.G.III showing many reversal lines (arrows) and some lipid droplets (L) (H&E X 400)	72
31	M-D section of Exp.G.III showing well defined megakaryocytes (MK) in the bone marrow (H&E X400)	73
32	B-L section of the control group stained for osteonectin. The periosteum (p) is intensely stained while bone matrix (BX) is faintly stained. Osteocytes are negatively stained (Anti-onectin X 400) Counterstain : hematoxyline.....	76
33	M-D section of the control group stained for osteonectin. The endosteum (En) and the osteoid (Os) lining the socket wall are intensily stained. with many positively stained active osteoblasts (Anti-onectin X400) Counterstain: hematoxyline	76
34	M-D section of the control group showing osteoclast (OC) negatively stained for osteonectin (Anti-onectin X 400) Counterstain: hematoxyline	77
35	M-D section of the control group showing megakaryocytes faintly stained for osteonectin (Anti-onectin X 400) Counterstain: hematoxyline.....	77

Fig. No.	Title	Page
36	B-L section of Exp.G.I stained for osteonectin. The periosteum (P) and bone matrix (BX) are faintly stained. Osteocytes (Oc) are faintly stained (Anti-onectin X 400) Counterstain: hematoxyline.....	79
37	B-L section of Exp.G.I showing negatively stained osteoid layer along the socket walls (arrows) (Anti-onectin X 400) Counterstain: hematoxyline.....	79
38	M-D section of trabecular bone of Exp.G.I showing endosteum negatively stained for osteonectin. The majority of osteoblasts are negatively stained (arrows) (Anti-onectin X400) Counterstain: hematoxyline.....	80
39	M-D section of bone marrow of Exp.G.I showing ill-defined negatively stained megakaryocytes for osteonectin (Anti-onectin X400) Counterstain: hematoxyline.....	80
40	B-L section of Exp.G.II stained for osteonectin. The periosteum (p) is intensely stained with many positively-stained active osteoblasts (arrows). Bone matrix (BX) is faintly stained and osteocytes (Oc) are negatively stained (Anti-onectin X 400) Counterstain: hematoxyline.....	82
41	B-L section of Exp.G.II stained for osteonectin showing intensily stained osteoid layer lining most of the socket wall (arrows) (Anti-onectin X 400) Counterstain: hematoxyline.....	82
42	M-D section of Exp.G.II stained for osteonectin. The endosteum (En) is intensely stained and lined by many active positively stained osteoblasts (arrows) (Anti-onectin X 400) Counterstain: hematoxyline.....	83
43	M-D section of bone marrow of Exp.G.II showing well-defined megakaryocytes (MK) faintly stained for osteonectin (Anti-onectin X 400) Counterstain: hematoxyline.....	83
44	B-L section of Exp.G.III stained for osteonectin. The periosteum (p) is intensily stained (Anti-onectin X 400) Counterstain: hematoxyline.....	85

Fig. No.	Title	Page
45	M-D section of Exp.G.III stained for osteonectin showing intensely stained osteoid layer lining the socket wall (black arrows) with many positively stained active osteoblasts(blue arrows) (Anti-osteonectin X 400) Counterstain: hematoxyline	85
46	M-D section of Exp.G.III stained for osteonectin. The endosteum is intensily stained (blue arrows). Osteocytes are negatively stained (black arrows) (Anti-osteonectin X 400) Counterstain: hematoxyline.....	86
47	B-L section of the control group showing distinctly stained blue immature collagen fibers lining parts of the socket wall (Masson trichrome X 200).....	89
48	B-L section of the control group showing distinctly stained blue sub-periosteal immsature collagen fibers in compact bone (masson trichrome X 400).....	89
49	M-D section the control group showing blue stained layer of collagen fibers surrounding most of the marrow cavities (arrows) (masson trichrome X 400)	90
50	B-L section Exp. G.I showing predominant bright red areas with almost absence of a distinct blue stained layer lining the socket wall (arrows) (Masson trichrome X 200).....	92
51	B-L section of Exp. G.I showing predominance of blue with bright red areas and absence of sub-periosteal blue-stained layer of new collagen formation (arrows) (Masson trichrome x 400)	92
52	M-D section of Exp. G.I showing predominance of blue with bright red areas (arrows) (Masson trichrome x 400)	93
53	B-L section of Exp.G.II showing a distinct blue-stained layer lining most of the socket wall (arrows) (Masson trichrome x 200)	95
54	B-L section of Exp.G.II showing sub-periosteal new caollagen formation (arrows) (Masson trichrome x 400)	95
55	M-D section of Exp. G.II showing blue layer lining the marrow cavity (arrow) (Masson trichrome x 400)	96

Fig. No.	Title	Page
56	B-L section of Exp.G.III showing a distinct blue-stained layer along parts of the socket wall (arrows) (Masson trichrome x 200)	97
57	B-L section of Exp.G.III showing sub-periosteal distinct blue-stained layer of new collagen formation (arrows) (Masson trichrome x 400).....	98
58	M-D section of Exp. G.III showing marrow cavities lined by thin blue-stained layer of new collagen (arrows) (Masson trichrome x 400).....	98
59	Histogram showing the mean area percentage of the mandibular trabecular bone in different groups.....	101
60	Histogram showing the mean number of osteocytes in the cortical bone in different groups.....	103
61	Histogram showing the mean number of megakaryocytes present in bone marrow in different groups.....	105
62	Histogram showing the mean BMD in different groups	107

INTRODUCTION & REVIEW OF LITERATURE

Cigarette smoking is one of the most destructive habits spread worldwide. The deleterious effects of smoking on various tissues are well known; even passive smoking has been proved to have harmful effects and has enormous public health implications.

Cigarettes contain more than 150 toxic compounds, of which nicotine is the major component known to interact with nicotinic acetylcholine receptor in many cell types. Cigarette smoke is divided into two different populations of free radicals, a particulate (tar) phase and a gas phase. The particulate phase of cigarette smoke contains more than 10^7 free radicals/gm and the gas phase contains more than 10^5 free radicals/puff. Nicotine, the major toxic component of the tar phase of cigarette, is responsible for tobacco addiction (**pryor et al. 1983**).

Tobacco refers to a genus of broad-leafed plants of the nightshade family; such leaves are often smoked in the form of a cigar, cigarette or a smoking pipe. Tobacco is also chewed, dipped (placed between the cheek and gum), or consumed as finely powdered snuff tobacco, which is sniffed into the nose (**Killebrew et al. 1928**).