شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم

HANAA ALY

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جامعة عين شمس

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قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

HANAA ALY

Effect of Nutrition on the Outcomes of Alveolar Cleft Grafting: A Baseline Audit

Thesis

Submitted to the Faculty of Dentistry, Ain Shams University for partial fulfillment of the requirements for master's degree in Oral and Maxillofacial Surgery

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Dedication

"For the ones who believe in me My Mother and My Father". I would not have accomplished anything without your guidance and support.

*"For my dear wife **Radwa** and son **Zeyad** without your help this work won't see light"*

*"Special Dedication for my brother and soul of my father grandmother **Teta**"*

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List of abbreviations

ABG: Alveolar Bone Grafting
AC: Alveolar Cleft
ACG: Alveolar Cleft Grafting
ACPA: American Cleft Palate-Craniofacial Association
AIC: Anterior Iliac Crest
AICG: Anterior Iliac Crest Graft
ALT: Alanine Transaminase
AST: Aspartate Aminotransferase
A/G: Albumin/ Globulin
BCLP: Bilateral Cleft Lip and Palate
CBCT: Cone Beam Computed Tomography
CCC: Cleft Care Center
CL: Cleft Lip
CLP: Cleft Lip and Palate
CP: Cleft Palate
CSAG: Clinical Standards Advisory Group
CT: Computerized Tomography
ONF: Oro-Nasal Fistula
OPG: Orthopantomogram
RDA: Recommended Dietary Allowance
TIBC: Total Iron Binding Capacity
TPA: Transverse Palatal Arch
UCLP: Unilateral Cleft Lip and Palate
UL: Upper Tolerable Limit
VPI: Velopharyngeal insufficiency

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Orofacial clefts are the commonest congenital anomalies of head and neck and present in about 1/700 live births through the world. [1]

The best treatment option for a cleft lip and palate patient (CLP) requires a multidisciplinary team approach. However, the most accepted approach for the management of patients with craniofacial anomalies according the American Cleft Palate-Craniofacial Association (ACPA) guidelines, is the presence of specialists' interdisciplinary team. [2,3]

There are three basic operations for CLP patients; the first one is the surgical repair of cleft lip which should be within the first 12 weeks of life. The surgical closure of cleft palate should be done by the age of 18 months and good results are achieved when it is earlier. Finally, the closure of residual alveolar cleft which should be grafted before the permanent maxillary teeth eruption in the cleft region and the timing of the operation should be collaborated with the orthodontist. [3]

The technique of choice remains the Secondary alveolar grafting, where early secondary grafting is done at 6-8 years of age; while secondary grafting is done at 9-12 years of age and finally the late secondary grafting is done after eruption of the canine. [4]

The bone graft source depends on the size (volume) of the defect. Ideally, cancellous iliac bone graft harvested from the anterior iliac crest is always the bone graft source of choice. [4]

According to the Clinical Standards Advisory Group (CSAG), success of the Alveolar Bone Grafts is 58%. Assessment of the Alveolar cleft grafting (ACG) can be done using the Bergland scale. It is a four-point assessment score of the inter alveolar height after bone

grafting. Types I and II are considered successful, while types III and IV are considered failure according to CSAG.[5]

The success of ACG depends on several variables as: patient's details (for example age, status of tooth eruption on the cleft side, cleft details, and the patient's general health), conditions of the surgical wound (overall oral health, blood supply, amount and quality of soft and hard tissue adjacent to the cleft, donor site, and scar tissue from previous operations) and the technical characteristics (the surgeon's experience and the graft material). [6-9]

One of the most important factors that is overlooked in cleft literature, that affects wound healing is nutrition. The oral and maxillofacial surgery literature is utterly deficient as regarding to this important topic.

Therefore, conducting a study to investigate the effect of nutrition on the outcomes of ACG could be of added scientific value and can be used as a baseline audit for further studies in this critical aspect.

- **Cleft lip and palate percentage, causes, associated problems and multidisciplinary care:**

Cleft lip and palate is the most common facial anomaly, being a congenital defect affecting about 3.97 per 5,000 of live births. Its frequency is different according to gender and site, for example cleft lip is 2:1 and cleft palate is 1:2 male: female ratio accordingly. [10]

Cleft lip and palate etiology is multifactorial, where both genetic and environmental factors are implicated. Cleft and/or palate can be part of syndromes like Van der Woude Syndrome, Hemifacial Microsomia, DiGeorge Syndrome, Stickler Syndrome and Ectodacytly Ectodermal Dysplasia and clefting syndrome. [11,12]

Cleft lip and palate include a heterogeneous group of defects with large volume and shape variations. Those children and adults usually have speech, hearing and feeding problems. In addition to that, patients with isolated cleft palate (CP) show an increased prevalence of abnormal middle ear status compared to non-cleft palate children. This is due to dysfunction of the Eustachian tube. The muscles that open and close the tube cannot contract properly and dilate the Eustachian tube. [13]

Children affected require multidisciplinary care, including speech therapists, psychologists, pediatric dentists, cleft surgeons, otolaryngologists, and orthodontists from birth to adolescence. Dental anomalies are often found in patients with clefts. Dental abnormalities include supernumerary teeth, tooth agenesis, fused teeth, microdontia, taurodontism and ectopic eruptions. [14]