ENVIRONMENTAL FACTORS INFLUENCING DISPUTED PATERNITY USING DNA-BASED METHODS

Submitted By
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M.B.B.Ch., Faculty of Medicine, Alexandria University, 1995

Master in Clinical Pathology, Faculty of Medicine (Girls),

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A Thesis Submitted in Partial Fulfillment

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APPROVAL SHEET

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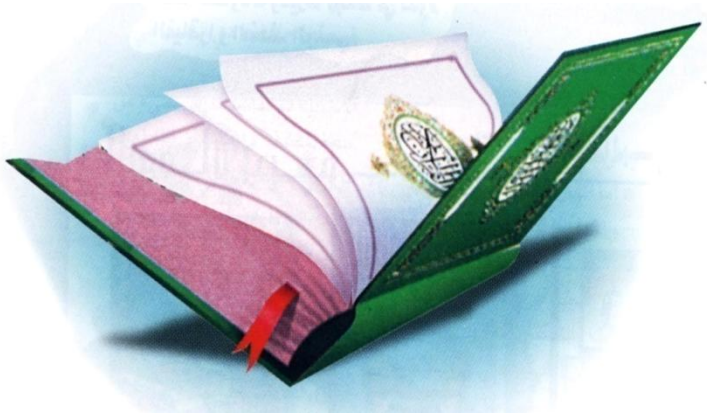
2019

بسم الله الرحمن الرحيم

ٱدْعُوهُمْ لِءَابَآئِهِمْ هُوَ أَقْسَطُ عِندَ ٱللَّهِ ۚ فَإِن لَّمْ تَعْلَمُوٓا۟ ءَابَآءَهُمْ
فَإِخْوَٰنُكُمْ فِى ٱلدِّينِ وَمَوَٰلِيكُمْ ۚ وَلَيْسَ عَلَيْكُمْ جُنَاحٌ فِيمَآ
أَخْطَأْتُم بِهِۦ وَلَٰكِن مَّا تَعَمَّدَتْ قُلُوبُكُمْ ۚ وَكَانَ ٱللَّهُ غَفُورًا
رَّحِيمًا ﴿٥﴾

صدق الله العظيم

سورة الأحزاب



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Abstract

The paternity of a child may be disputed either when the child is born in wedlock and the husband denies paternity or when the child is born out of wedlock and the man named as the father denies paternity. There is great variation across cultures in beliefs about paternity, but cross-culturally, paternity confidence is positively associated with men's involvement with children and with investment or inheritance from paternal kin.

The study aims to focus on the role of DNA as powerful technology in disputed paternity and to determine the different environmental factors that predispose to deny children.

DNA typing of 15 short tandem repeat (STR) loci included in the AmpFℓSTR Identifiler TM PCR amplification kit (Applied Biosystems), was carried out on paternity cases arriving to Egyptian Forensic Medicine Authority (EFMA) - Medical laboratory with the use of questionnaire, this study was done during the period of one year, 48 cases fulfilled the criteria of this study with total 153 individuals.

Results showed that 23 of studied cases were inclusion cases (the alleged fathers "AF" are the true fathers) , 23 of studied cases were exclusion cases (the AF are not the true fathers) while the remaining two cases showed inclusion and exclusion within the same case.

The use of DNA in disputed paternity cases has a powerful role in determining inclusion/ exclusion. Also, results of this study showed the effect of disputed paternity cases on the children subjected to such situation.

KEYWORDS: Amplification, DNA typing, disputed paternity, inclusion/ exclusion, short tandem repeat (STR).

List of Contents

List of Abbreviation

Abbreviation	The word
A	Single-letter designation of the base Adenine.
AABB	American Association of Blood Banks Paternity Committee
AM	ante-mortem
AF	Alleged Father
Bp	base pair
C	Single-letter designation of the base Cytosine.
CODIS	Combined DNA Index System
DNA	Deoxyribonucleic acid
DNAD	DNA Database
DVI	Disaster victim identification.
ENFSI	European Network of Forensic Science Institutes
EFMA	Egyptian Forensic Medicine Authority
FBI	Federal Bureau of Investigation.
G	Single-letter designation of the base Guanine.
GA	Genetic Analyzer
HLA	human leukocyte antigen
ISFG	International Society for Forensic Gnetics.

Abbreviation	The word
ISO	International Organization for Standardization
LCN	Low count number
LR	Likelihood Ratio
NAS	National Academy of Sciences'
NRC	National Research Center
NDNAD	National DNA Database
PM	Post-mortem
PCR	Polymerase chain reaction
PTC	Paternity Testing Commission.
PI	Paternity index
QA	Quality assurance
Rh	Rhesus
RFLP	Restriction Fragment Length Polymorphism
RFUs	Relative Fluorescence Units
SSRs	Simple Sequence Repeats
STR	Short tandem repeat
T	Single-letter designation of the base Thymine.
UNICEF	United Nations International Children's Emergency Fund

Abbreviation	The word
US	United States
VNTR	Variable number of tandem repeats
3D	Three dimensional
A-T	Adenine-Thymine
G-C	Guanine-cytosine

LIST OF TABLES