

## Analytical Study of Paternity Test Cases in Iraq During the Period ( 2002 – 2007 )

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### ABSTRACT:

#### BACKGROUND:

An analytical study was done for all paternity test cases referred to the paternity & kinship laboratory in Medico-Legal Institute in Baghdad during 6years period of time (2002 - 2007). The total numbers of sons were calculated. The Total numbers of whole cases were calculated and divided according to the method of result analysis whether (direct or indirect).

Statistical calculation of cases was done according to the presence of Kinship between mother and father in each family ,their reference from variable states in the country ,the reasons of reference & the results of exclusion and inclusion for both variable blood groups and HLA Tissue Typing Tests.

#### OBJECTIVE:

To compare with previous studies, and notice if that there was a fluctuation in the number of referred cases and changes in the causes of reference influenced by Political , Social , Economical and security situations during the period 2002 – 2007 in Iraq .

#### METHODS:

- 1-Morphological Examination
- 2-Blood Group Factors Examination
- 3-HLA – Tissue Typing

#### RESULTS:

The total serial numbers and total practical numbers and total numbers of all children of whole cases referred to MLI during (2002-2007) were calculated. Beside to the total numbers of practical cases were divided and calculated according to the method of result analysis (Direct and Indirect) during ( 2002-2007 ) and the total particular numbers of cases were divided & calculated according to the kinship between the father and mother during (2002-2007), the Total numbers of serial cases were divided and calculated according to the reasons of reference legal ,social, and criminal causes of reference during the period (2002- 2007) and others.

#### CONCLUSION:

- 1- The reasons for reference during 2002 to 2007 mainly from Baghdad were related to the legal factor rather than social ,due to increase the demand of families to gain the Iraqi nationality and ID card registration to gain their civilian and lawful rights (respectful,social,Financial,patrimony,etc....) ,Those families whose their member was a victim of political violent , mass graves ,war , crimes and immigrant dispute.
- 2- The HLA Tissue Typing was considered corner stone in exclusion paternity when the blood groups results were compatible between the putative father and child and it was considered a scientific document that help and consolidate the inclusion probability of paternity according to the circumstances of each case which was decided and rebated by the court of law .

**KEYWORDS:** paternity case , blood group ,analytical study ,hla tissue typing

### INTRODUCTION:

Paternity test cases were considered the most important issue to be dealt with in Forensic <sup>(1)</sup> conventional method of investigation based on variable blood groups &HLA –Tissue typing in Till nineties, most of laboratories depended on absolute exclusion & inclusion to some extent

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according to the Mendlian law of inheritance <sup>(1,4)</sup> Lattes in Italy in 1916 was the 1<sup>st</sup> one to use blood group antigens to test such cases , then the 2<sup>nd</sup> who use blood group antigens to test such cases U.K.in 1922....After the discovery of HLA System by the French dausset 1954 & Vanrood in 1962 &the documentation of most of their antigens by Payne 1964, HLA-Tissue Typing had been added for the standardization requirements needed for paternity <sup>(5,7,12)</sup>

From forensic point of view, these antigens are considered <sup>(6)</sup> :

- Constant through out the entire life span.
- The mode of inheritance is known.
- The test technique is relatively simple & reproducible.

Variable DNA Based Technology to test variable kind of Blood group and HLA were used like PCR-RFLP, SSP ( Sequence Specific Primer ) and SSO ( Sequence Specific Oligonucleotide ) Technologies at the end of 20 century to elevate the fidelity ,accuracy and discrimination of the test based on molecular level of investigation .At last the advance in fluorescent multicolor technology in association with the invention of Genetic Analyzer in 1995 had revolutionized Forensic through DNA Typing .<sup>(3,11)</sup>

In Iraq, Fortunately, since the end of 2007 all those later techniques are available in the DNA Typing Department in Medical- legal institute (MLI) in Baghdad despite all the difficult ,unstable situation in Iraq lasted many decades .

**MATERIALS AND METHODS :**

The people of referrals or the trios were subjected to following tests:

1-Morphological Examination

2-Blood Group Factors Examination(5,6)

A) ABO , Rh , E , e , C , c , M , N , P & S Antigen tests were done for all cases

B) Duffy(Fya,Fyb)-Kidd (Jka,Jkb)-Kell (K,k)-and Lutheran(Lua,Lub) were done when available<sup>(8)</sup>

- The technique was based on antigen – antibody reaction resulted in agglutination or non agglutination.

- The anti-sera were obtained from Biotest Company

3-HLA – Tissue Typing :

**A)** Typing for HLA-A , HLA-B & HLA-C = Class I)

- The technique was based on antigen-antibody reaction accelerated by complement resulted in a cytotoxic reaction (dead or live cells Lymphocytotoxicity test ).<sup>(9,10)</sup>

- The anti-sera were obtained from Bag Company

**B)** Histotype of Class II using SSP Method was used in some sensitive paternity issues & when kits available (Bag and Lambda companies )<sup>(11)</sup>

**RESULTS :**

- The results of the calculated figures in this Study were obtained from the files of referral cases during 2002-2007. (Retrospective Study).

- All paternity test affairs were ordered as a request from the court of law in Iraq or from the investigative & decretory offices.

- For official registration, each case referred to the medico - legal institute had its serial or order number.

Sometimes the referred case which had one serial number may contain more than one practical paternity test requirement had to be examined ( ex. when the court required examination of paternity for 3 children related to the same family , so here we have got 1 serial number for the case but 3 practical paternity cases for investigation that's mean particularly each child of the three would be examined with his parents as a separate forensic case ( 3 Trios = Father , Mother and Child ).

- So that's why the whole serial cases were subdivided into practical real cases for investigation.

The total serial numbers of whole cases during (2002-2007) were calculated and the lower cases referred to MLI in 2003&2007 compared to 2002 ,2004, 2005, 2006, 2007.

The total practical numbers of whole cases during (2002-2007 ) were calculated too.

The total numbers of all children or persons who were examined as offspring during the same period of time were calculated also as shown above:

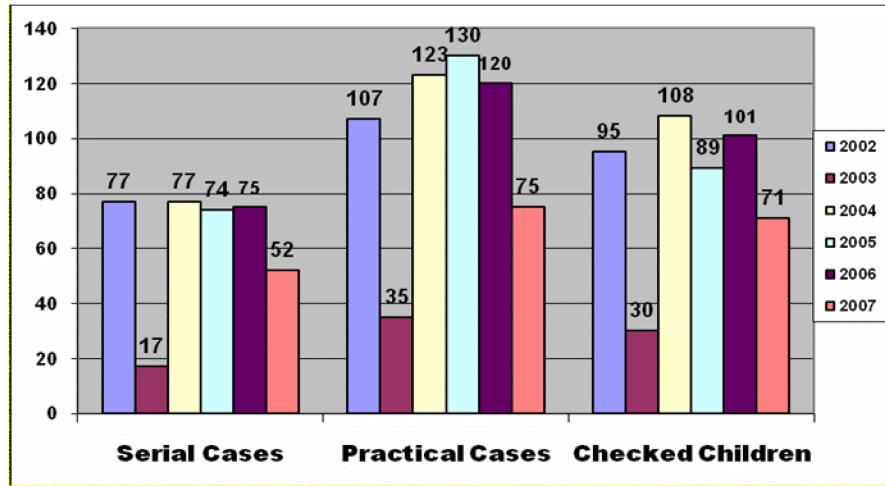


Fig 1: The total serial, practical cases and all children examined in period (2002-2007)

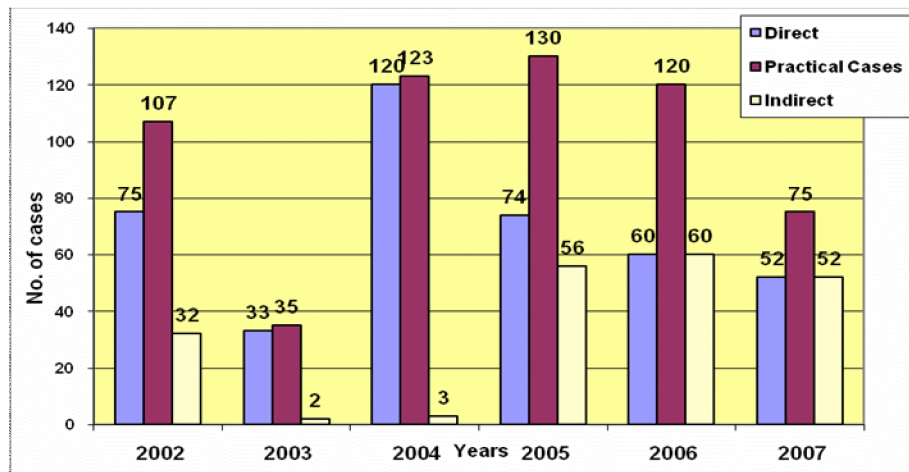


Fig.2: The total numbers of practical cases were divided & calculated according to the method of result analysis (Direct & Indirect) during (2002-2007).

i.e. When the trios ( Father, Mother & Child ) were alive so the case would be rebated directly through the comparison of the tests between the child & his parents , while when one of the child's parents was dead the comparison would be indirect

through lineage analysis & examination of the blood groups & HLA Typing of his or her relatives who were alive example Childs brothers or grant parents so the case would be rebated indirect. as shown above:

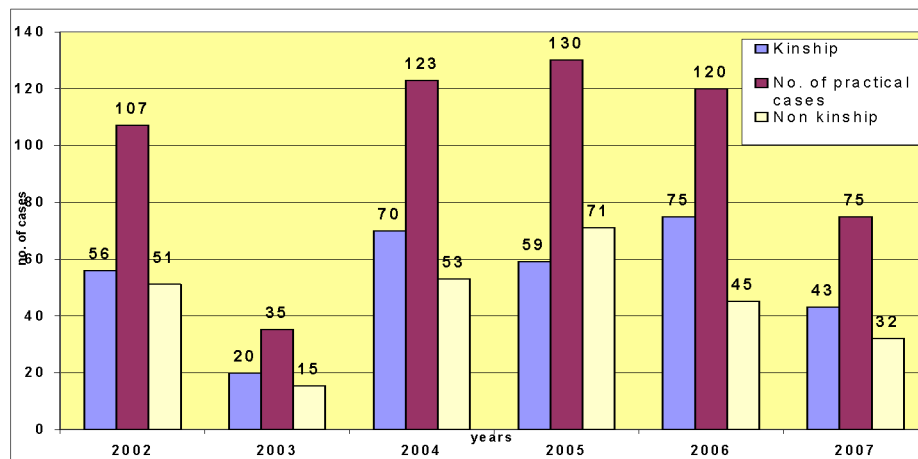


Fig 3: The total particular numbers of cases were divided & calculated according to the kinship between the father & mother during (2002-2007)

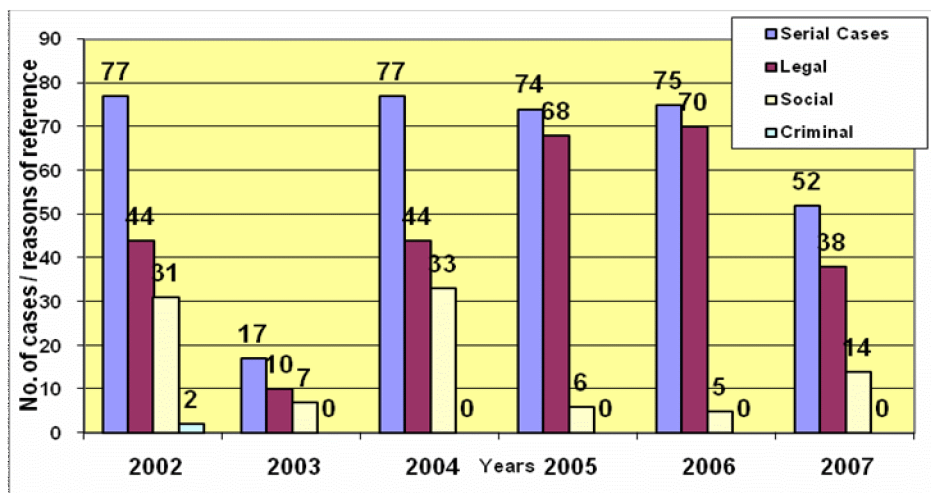


Fig 4: The Total numbers of serial cases were divided & calculated according to the reasons of reference legal, social, and criminal causes of reference during the period (2002- 2007)

Legal factors like person's identification card & amendments of birth registration, which highest in 2006.

Social factors like illegal sexual relationship, missing

child and problems of patrimony, which highest in 2004.

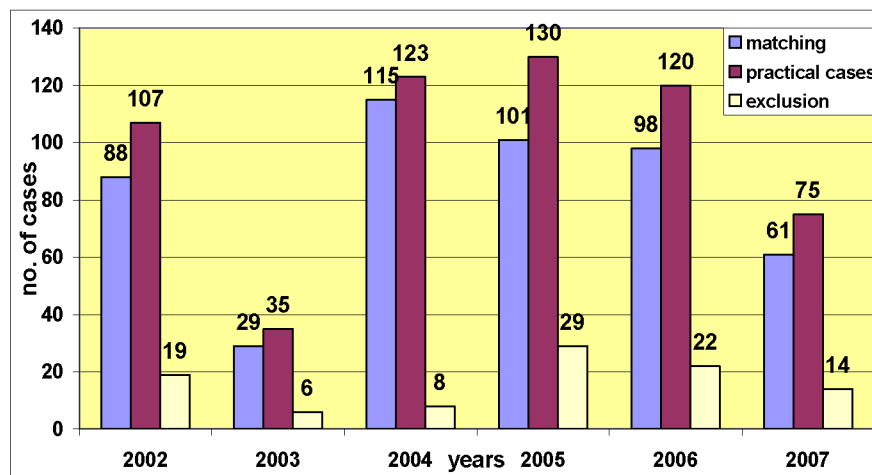
Criminal factors like murder and rape with murder, which highest in 2002. as shown above:

## PATERNITY TEST CASES IN IRAQ

**Table 1: The Total numbers of serial cases were divided & calculated according to their reference from the provinces or states in Iraq during the period (2002-2007)**

Qadsya	Misan	Sala-Din	Sulaimanya	Muthana	Anbar	Erbil	Duhok	Najaf	Wasit	Banil	Basrah	Thi Qar	Karbala	Ninava	karkok	Diala	Bag	year
2	0	1	1	2	1	0	1	1	0	6	3	7	3	0	2	5	42	2002
0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	14	2003
0	0	0	0	1	0	0	0	3	1	4	0	7	2	0	0	5	53	2004
0	0	2	0	1	0	0	0	0	2	4	1	0	0	3	0	2	59	2005
2	0	0	0	0	0	2	0	0	0	4	0	1	1	0	0	1	64	2006
2	2	0	0	0	0	0	0	1	1	2	2	0	1	0	0	0	41	2007
6	2	3	1	4	2	2	1	6	4	20	7	15	7	4	3	13	273	Sum

- Most of the cases were referred from the capital Baghdad.
- Few cases were come from the provinces which are much nearest to the capital like ( Diala , Al- Taamim ,Karbella , Babil & Wasit ) .
- Just one to three cases were referred from the provinces all over 6 years from 2002 to 2007 which were from north of Iraq (Kurdistan) & provinces at the tension border like ( AL-Anbar & Saladin ). As shown above:



**Fig 5: The total numbers of the practical cases were divided & calculated according to the Blood Groups results in case of exclusion & non exclusion during (2002-2007) .**

Exclusion result mean not compatible between putative father and child and were highest in results 2005. As shown above: 2004, where non exclusion result mean compatible

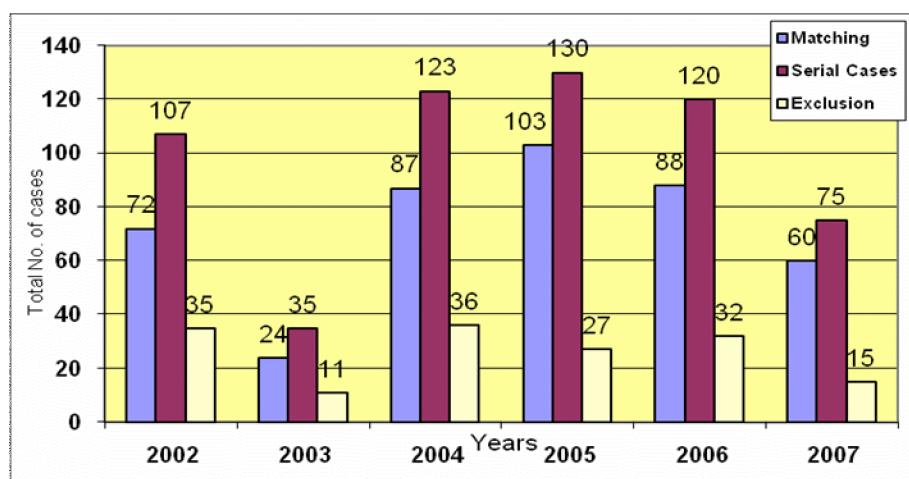


Fig 6: The total numbers of the practical cases were divided & calculated according to the HLA – Tissue Typing results in case of exclusion & inclusion during (2002-2007) .

**DISCUSSION:**

The need for paternity test investigation in eastern countries like Iraq was arisen from its social, legal and criminal importance. Therefore, statistical, psychological and social studies were continued to understand the development and the effect of the regress or prosperity of the society according to political, social, economical and lawful factors in the country.

In the present study, we have found that there was a fluctuation in the numbers of paternity issues referred during the period from 2002 to 2007. Fig ( 1 )

In 2003, there was an obvious decrease in the serial & practical numbers of cases due to war conflict while there was relative clear decrease in 2007, most probably due to serial long governorate order of movement prohibition with the presence of concrete barriers all over the main roads & their collaterals specifically in the capital as apart of security plan called (Law enforcement Plan) as a response to the deteriorated security situation during 2006 followed some Genocidal actions event.

From 2004 to 2006, there was an elevation in the number of cases due to relative stability after the war which allowed many families move freely to attain the judicial and civilian offices like MLI.

From Fig ( 2 ), we have found so as previous study from 1999 till 2001, that the total particular numbers of rebated paternity cases by direct method during 2002 till 2007 were much higher than those cases rebated indirectly through lineage study due to missing father. Except in 2006 & 2007 when the two kinds of cases direct & indirect were equal in their total numbers, this elevation in ( indirect ) cases was related to increase un natural death among

population due to war victims, missed people, mass graves, victims of political violence and unstable security situation lead to different violent crimes & robbery. So intern there was an increase in orphans among different families & they need to confirm their relatedness officially to their real one.

From analytical point of view, the interpretation of the results in the direct conclusion way is much easier than those cases which were in need of human pedigree analysis.

We have to mention that, any rebated case was allowed to be protested by the citizen according to the law of legal medicine in 1987. The investigations would be retested again by the protests committee. We have found that there was no contradiction between our decisions & the protests committee decisions regarding paternity issues during (2002-2007) .

We have found from Fig ( 3 ) that, the number of cases when there was kinship between the father & mother was higher than those with no kinship between them in 2002, 2003, 2004, 2006 & 2007 in contrast to previous study for same parameter in 1999 to 2001, this was due to increase the reference of families whose fathers had been executed for political reason (victim of political violence) in past decades so their sons & daughters were adopted at that time by their relatives to save their life & rights .

An exception in 2005, non kinship relation was more than kinship, this was related to increase the

reference of families for (Immigrant Dispute) problems. Those families were enforced to migrate outside Iraq during few decades ago, most of them

were able to return back again after 2003 & settled again in Iraq. Those families were hybridized with other Iraqi families or foreigners when they were outside & all have the project to gain the Iraqi nationality documentation paper to have their lost respectful, civilian & lawful Rights.

The non kinship relation between father & mother yields 3 benefits for us:

- \* The test analysis would be easier
- \* The discrimination power would be increased
- \* The similarities in alleged father – child blood tests which might be resulted from the kinship between them not to paternity would be avoided in these cases.

The total serial numbers of cases were divided & calculated according to reasons of reference during the period (2002-2007). Fig. (4)

To ease the calculation, the reasons for reference were classified to 3 main factors:

- 1- Social Factor
- 2- Lawful or legal Factor:
- 3- Criminal Factor

### **Social Factors include :**

- a) Illegal sexual relationship & rape cases resulted in child's birth.
- b) When the husband denies or in doubt about his child. (To verify the real father & To save The right of the child)
- c) Machinating complaints.
- d) Missing child or interchange in the hospital.
- e) Problems of patrimony.

### **Lawful or Legal Factor include:**

- a) Verification of birth registration document after the lose of child's or person's Identification cards.
- b) Amendment of birth registration, for example in (adoption cases)

### **Criminal Factor:**

When the paternity test request was associated with a murder due to a reputing response or for an honor.

Most of the cases were referred due to lawful factors which were associated with verification or amendment of birth registration rather than due to social factor<sup>(2)</sup>.

The difference was simple or little between lawful & social factors from 2002 to 2004 but it was so sharp from 2005 to 2007. The increment in legal causes of reference reflects the need of families to gain their lost respectful, lawful rights (like patrimony etc...) & the benefits after the change in government through having ID document.

We may subdivide the legal factor to verify & amendment registration to 2 types of newly kind of families attended :

- 1) Families with the problems of Immigrant Dispute (from neighborhood countries more than far away one)
- 2) Families whose their member was a victim of political violent reason or mass graves, his sons or daughters were adopted by other relatives to save their life & rights.

In comparison to 2004 and 2006, Fig (1) confirm that in 2005 the total practical number of cases was much higher than total serial number with relatively law total number of children because of the attendance of the biological & Adopted families with the same son or child for paternity investigation so this goes with our interpretation in Fig (4).

From Table (1) we have found that, most of the cases were referred from Baghdad (273), then from the provinces which are nearer to it like Babil and Diala (20 & 13 Case respectively).

This is because Baghdad is the capital and it characterized by variable social and educational nature in comparison to the conservative nature of other states culture and so Increase the level of citizen's awareness to avoid the social & legal problems resulted from disputed paternity, also because MLI in Baghdad is the only centre to solve such cases all over the country & its easy to access.

Then to lower extent provinces at the middle of Iraq with relative marked stable security situation like (Karbala, Najaf, Qadisyah, Wasit, Thi-qar, Al-Muthana, Misan, Ninawa & Al-Basrah)

In other states, the numbers of cases were decline obviously due to either unstable security situation & tension area like in (Karkuk -3 cases and Al-anbar province- 2cases), or to the far distance and the relation with Baghdad centre in Kurdistan states like (Erbil, Sulaimanya and Duhok- 2,1&1 case respectively).

From Fig (5 & 6), the compatibility in the blood groups and HLA Typing between the real fathers & their children during (2002-2007) ran in parallel with the major cause of reference which was the lawful factor, that means there was no problem, just to verify the register document & this result was expected to us.

In few cases, paternity were excluded by Blood Groups in comparison to HLA Typing but this exclusion was considered to be an absolute and unanswerable and it was very important especially in the sensitive social cases like doubtfulness of husband about his child this is because the sequel of

these cases would be dangerous in our society reflected probably in a repugnant response or a criminal.

In majority of cases, when the blood groups results were compatible between the putative father & child due to limitation of polymorphism of a given blood group, the exclusion of paternity would depend on HLA – Tissue Typing. So the importance of HLA – Tissue Typing in these cases was superior due to its high polymorphic phenomenon

### CONCLUSION:

1. There is a marked influence of society to the political & major changes in the country include political, social, economical, lawful & security situation reflected on the whole picture of paternity test cases referred to MLI – Baghdad.

2. The investigative and depository offices awareness to paternity issues and their project to solve their legal & social effects in a scientific way led to continuous mounting increase in those cases despite of some fluctuation due to unstable security situation during the period of 2002 to 2007 in Iraq.

3. The reasons for reference during 2002 to 2007 mainly from Baghdad were related to the legal factor rather than social, due to increase the demand of families to gain the Iraqi nationality and ID card registration to gain their civilian and lawful rights (respectful, social, financial, patrimony, etc....). Those families whose member was a victim of political violent, mass graves, war, crimes and immigrant dispute.

4. The HLA Tissue Typing was considered corner stone in exclusion paternity when the blood groups results were compatible between the putative father and child and it was considered a scientific document that help and consolidate the inclusion probability of paternity according to the circumstances of each case which was decided & rebated by the court of law.

5. The understand of social, lawful, religious, local offices and human right wide world organization like UN and ICRC, etc., to the effect and subsequent sequels of all events on Iraqi culture may help to build up the unit of society (The Family) and it helps to convey the scientific, ethical, academic and public service to all relevant institutes.

### Recommendations :

1- The researchers, specialists & human organization were invited to study the Psychological, social, legal and post traumatic sequels of the war and changes happened later on affected families in Iraqi society.

2- As the DNA Typing Department has been established in MLI – Baghdad practically at the end of 2007, it's important to use DNA Profiles & DNA Technology to serve forensic application in general like immigrant dispute, mass graves missing people cases. In particular paternity issues specially for those cases in need to human pedigree analysis & phylogenetic study.

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