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General characteristics of paternity test applicants

Aim: This research was done to fill the gap in research on the social dimensions of paternity testing by determining the reasons for the suspicion and some characteristics of families who applied for a paternity test.

Materials and methods: This research was performed with 50 men that applied for paternity testing. The bi-sectional questionnaire was conducted by means of the interview method. The questionnaire comprised questions on age, education, the reason for and duration of paternity suspicion, domestic violence linked to the paternity suspicion, and plans for the future following the test. The data were assessed with SPSS 10.0 and chi-square test for one sample.

Results: The age of the participating mothers and men was mainly between 31 and 45 years. All mothers and fathers were literate. The duration of suspicion was between 1 month and 30 years. The frequency of domestic violence related to the uncertainty of paternity was 50%. While 34% of men stated they would take responsibility for the child if the result was negative, and 28% said they would discontinue any communication.

Conclusion: The assessment of the results shows that, except for future plans, significant differences exist in all data.

Key words: Forensic sciences, psychology, paternity testing, DNA analysis, biological paternity, paternity suspicion

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Babalık testi yaptıranların genel özellikleri

Amaç: Bu çalışma ile, babalık şüphesinin nedenlerinin ve test için başvuranların bazı özelliklerinin incelenerek babalık testinin sosyal yansımaları konusundaki boşluğun doldurulmasına katkı sağlanması amaçlanmıştır.

Yöntem ve gereç: Bu araştırma babalık testi için başvuran 50 erkek ile gerçekleştirilmiştir. Görüşme tekniği ile iki yönlü anket uygulanmıştır. Ankette yaş, eğitim, babalıkla ilgili şüphenin nedenleri ve süresi, bu şüpheliyle bağlantılı aile içi şiddet yaşanıp yaşanmadığı ve test sonucu alındıktan sonra gelecek ile ilgili planları ile ilgili sorular yer almıştır. Veriler SPSS 10.0 ve tek örnek için Ki-Kare testi kullanılarak değerlendirilmiştir.

Bulgular: Anne ve babalık şüphesi olan erkeklerin yaşlarının 31-45 arasında olduğu belirlenmiştir. Tüm anne ve babalar okur yazardır. Babalık şüphesinin yaşanma süresi bir ay ile 30 yıl arasındadır. Biyolojik baba olup olmadığı şüphesi ile bağlantılı erkeğin şiddete başvurma oranı % 50'dir. Test sonucunda baba olmadıkları ortaya çıkarsa, erkeklerin % 34'ü çocukla ilgili sorumluluklarını üstleneceklerini, % 28'i ise her türlü bağlantıyı keseceklerini belirtmişlerdir.

Sonuç: Sonuçlar değerlendirildiğinde, gelecek ile ilgili planlar dışında tüm verilerde belirgin farklılıklar olduğu görülmüştür.

Anahtar sözcükler: Adli bilimler, psikoloji, babalık testi, DNA analizi, biyolojik babalık, babalık şüphesi

Introduction

Determination of kinship

Kinship refers to the legal and/or biological link between one and his/her ascendant. The establishment of a biological kinship between the father and the

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child and the mother and the child is a legal issue. Both the former and present legal systems accept that the kinship between the mother and the child is established through birth. For instance, in Roman Law, it was stated that who the mother of a child was, because of the process of birth, was always certain, but the identity of the father was a matter of suspicion. The establishment of kinship between the father and the child is a problem that occurs in all present legal systems and various arrangements exist to resolve this issue (1).

Until the advent of scientific methods, giving birth during the course of marriage and a birth certificate were deemed sufficient as proof of paternity. In the classical periods of law, even though the husband was considered to be the father of a child born 6 months after the marriage started and within 10 months after the marriage ended, the marriage bond alone was not deemed sufficient for the establishment of kinship between the father and the child in later periods. It was claimed to be necessary that the husband indicate he accepted the baby as his own by holding it in his arms right after the birth (1). UK and US laws accepted, for a long time, that the husband of a woman giving birth to a child during the course of their marriage was the father of that child, except in cases of male impotence or sterility (2). Moreover, according to an old British law, a man who did not have any physical disabilities whatsoever was not permitted to file a petition before a court to doubt his paternity during the pregnancy of his wife on British territory (3).

In Islamic Law, although paternity cases like the ones in our present law did not exist, some cases that could be described as the determination of paternity in today's sense are known to have been filed. Moreover, there was a practice called "Lian" (imprecation) to deny paternity. Both the man claiming that his wife had an affair with another man and the child born in the course of marriage was not his own and the woman claiming that her husband was lying took 4 judicial oaths. When the fifth oath was being taken, they wished that the one who was lying would be cursed by God, the filiation was denied, and the marriage ended (1).

In the Ottoman Empire, family issues were first arranged in 1917. After the proclamation of the

Turkish Republic, our Civil Law, ratified in 1926, gave rise to significant improvements with respect to family and children (4). Turkey has made amendments in related laws in accordance with the conditions of the time and become a party by signing various international treaties about kinship (1). As for the recent arrangements and the resolutions of the Supreme Court, the issues like denial of kinship and paternity are the concerns of public order and must be proved with evidence. Therefore, a man's declaration that he accepts the child as his own is not sufficient and it is required that genetic research with biological samples be done (5).

DNA analysis for the determination of paternity

After science made it possible, attempts to determine the genetic link between a man and an infant were initiated by comparing several criteria. Analysis of the color of the eye, shape of the ear and nose, the forehead hair line, and other physical characteristics was replaced by more scientific analyses of proof. In fact, the fundamentals of genetic analysis are to be found in Mendel's Law of Inheritance. According to this law, genetic material is transferred to the next generations on the basis of specific rules; thus biologically related individuals share similar genes. Hereditary features such as blood group systems and serum proteins, which were discovered in the 1900s, were used as markers to determine kinship. However, since these methods discarded the probability of paternity only at a rate of 30%-40%, more reliable techniques were researched (6). The Human Leukocyte Antigens (HLA) method, developed in the 1970s, excluded paternity at a rate of 80%, but the test results were similar between blood relatives, and only infants over 6 months were eligible for testing. After the discovery of the structural characteristics of the DNA molecule in the 1950s, molecular genetic technology rapidly developed and DNA profiling has become a valuable tool for paternity and kinship determination. Particularly in the last 20 years, DNA analysis has been accepted as the most reliable method, with a probability rate of 99.999%.

DNA paternity tests are based on the biological rules that, except in monozygotic twins, each individual's DNA is unique and half of the genetic material is inherited from the biological mother and

the other half from the biological father (7,8). In the paternity test, specific gene regions are examined for a match between mother, father, and child. A mismatch in 2 or more gene regions of the alleged father and the child discards the probability that that man is the biological father of the child (exclusion). A match in all compared gene regions yields a result of 99.999% in the paternity index calculation, which is accepted as conclusive evidence of paternity (inclusion) (9-11).

If the mother, alleged father, or child gets suspicious about their biological kinship or if determination of the kinship is legally important, DNA analyses are requested under the guidance of persons, physicians, lawyers, and courts (12-14). When the mother has more than one partner at the time she becomes pregnant, men request DNA analysis to find out if they are the biological father of the child, whereas the mother and/or the child want DNA analysis to prove that the man in question is the biological father of the child and to have him assume responsibility for the care of the child. Moreover, women want to refute rumors purported by people around them, whereas children want to find their real families. Besides individuals, governments may also request a DNA test for determination of lineage to establish links between families in cases of immigration (15). US states sometimes request tests in line with the Personal Responsibility and Work Opportunity Act of 1996 for alimony purposes (2). The court decides based on the DNA test result in disputes of inheritance, baby mix-up allegations in the hospital, and rape cases with more than one perpetrator to identify the suspect father. In these cases samples are taken from the mother, father, child, or parent, or from the relevant party and the child for analysis purposes. If the mother/father cannot be found, a person is missing, or a disaster results in mass death, it is possible to determine the genetic profile through relatives (3,16).

One of the most common areas where DNA analysis is used is paternity tests (17). More than 220,000 paternity tests are performed in the United States every year. Considering that these figures do not cover tests done in non-accredited centers, the real number is much higher (18).

In addition to technological developments, the Internet, television, and socio-cultural and economic factors facilitating access to testing facilities, an increased extramarital birth rate, tests available at both official and private institutions, and a growing demand by courts and prosecutors have a significant contribution to the rise in the number of paternity tests (19).

Although using a method that has become routine and established itself all over the world to determine a matter as important as kinship seems to be appropriate, one has to bear in mind that, before and after the test, the lives of the relevant parties change. Who files a lawsuit on what ground does not change the fact that the test result introduces radical changes to the lives of the persons involved. A literature review reveals that there are many publications on the technical applications of DNA analysis and the cases while the social and psychological aspects remain in the background. The present study has been designed with the aim of contributing to the latter by determining some of the social characteristics of persons presenting for a paternity test and their probable behavior after the test result.

Materials and methods

The research has been performed with men applying to Ankara University, Faculty of Medicine, Forensic Medicine Department, Forensic DNA Analysis Laboratory for paternity testing. The cases to be examined comprised those sent by the courts and prosecution and individual private applications.

The children were removed from the room where the preliminary interview would take place and taken to a room where they could play on the basis of the idea that they would have difficulty in understanding the process, and they would be upset or misled.

All male applicants that came to the center with or without their wives were informed about the aim and content of the study and given safeguards of confidentiality. Fifty out of 123 applicants agreed to respond to the questionnaire, while the rest refused for various reasons. The bi-sectional questionnaire was conducted by means of face-to-face interviews with 50 male respondents.

The survey comprised the following points:

- Whether or not the mother knows about the test
- Their opinion on whether or not the child/children should know why they were brought to the test center
- Who pays for the test
- Reasons for undergoing the paternity test
- Duration of the paternity suspicion
- Domestic violence linked to the paternity suspicion
- Future plans for the children depending on the test results

The data were assessed using SPSS 10.0. The chi-square test for one sample was used to determine the significant difference in the distribution of variables upon calculation of percentages. In the analysis results, $P < 0.01$ and $P < 0.05$ were accepted as determinants of significance (17,20).

Results

Although 123 men that requested a paternity test were given detailed information on the study and told their ID would, on no account, be used anywhere else, only 50 men (41%) agreed to respond to the questionnaire. There is no significant difference between non-respondents in terms of level of education and age. Most of them gave the following reasons for not participating: lack of time, another appointment, long waiting time etc. Some did not want to give any more information than was necessary for the registration.

The age of the participating women and men was mostly between 31 and 45 years; 36% of the mothers and 33% of the men were below 30 years of age. The percentage of women and men over 46 years was 2%. The majority (72%) of the children were in the age group of 0-5 years. Eleven (22%) children were between 6 and 15 years and 3 children (6%) were older than 30 years.

All mothers and fathers were literate; 26% of women and 10% of men were primary school graduates; 58% of women and 64% of men were secondary/high school graduates, while 16% of women and 26% of men were university graduates.

As to whether or not the mother knew about the test, in 29 (58%) cases the child was brought to the center by the father and the mother did not know about it. In some of the cases the father was accompanied by his father or mother. In 7 cases (14%), the mother did not want to be present at the laboratory although she knew about the DNA test. In 14 cases (28%), the man, the mother, and child came together. However, 5 of these men were married to another woman and wanted the test to determine whether or not the child born out of marriage was theirs.

Asked if they would tell the child or not, 50% of men said it would be better if the child was told the reason for the test when s/he was old enough to understand it. However, when asked if they had told the child the reason for the test, 82% of the group with a child of 6-15 years of age said they kept it a secret. Those giving contradictory answers claimed the child would not understand and his/her dignity might be hurt. Nearly half of the fathers (46%) thought the child should definitely not be told about the test. Two fathers (4%) said they had never thought about this question before.

Most of the men (92%) paid for the test themselves, whereas 2% borrowed the money from friends. Moreover, 6% did the test upon request and pressure of their father, who paid for it.

The main reasons why the father thought the child was not his were:

Dissimilar physical characteristics (18%)

Statements by those around them that the child did not look like them

The mother saying she had an affair with someone else (14%)

The mother's wish to dispel rumors and incorrect suspicions (14%) (Table 1). Asked how long they had doubted their paternity, 68% said for between 1 month and 1 year and 30% for 2 years. One father had been suspicious for 30 years (Table 2). On the question of domestic violence related to the uncertainty about paternity, 50% of the applicants replied they were not violent, while 22 men (44%) used the word "sometimes" and 3 men (6%) "often" to describe the frequency of violence.

Table 1. Reasons why the father applied for DNA analysis.

| | <i>n</i> | % |
|--|----------|----|
| Pressure by those around | 7 | 14 |
| Child not resembling him | 9 | 18 |
| Words uttered by the mother during rows | 6 | 12 |
| Discrepancy of blood groups | 2 | 4 |
| Men's claim to be infertile | 4 | 8 |
| Mother wants to come clean on allegations | 7 | 14 |
| Preterm birth | 1 | 2 |
| Pressure by grandfather in extended families | 3 | 6 |
| Does not want to pay alimony | 3 | 6 |
| Suspicious call | 1 | 2 |
| Spouse becoming pregnant despite birth control | 1 | 2 |
| Does not want to know the reason | 6 | 12 |

($X^2(11)$): 20.08 $P < 0.05$, df: 11)

Table 2. Duration of suspicion about actual paternity of the father.

| | <i>n</i> | % |
|--------------------|----------|----|
| month | 17 | 34 |
| 1 month-1 year | 17 | 34 |
| 1-2 year | 5 | 10 |
| More than 2 years | 10 | 20 |
| More than 30 years | 1 | 2 |

($X^2(4)$): 20.40 $P < 0.01$, df: 4).

When we asked what their plans for the future were after learning the truth, 34% said they only intended to know the truth and would not change their plans for the future with respect to the child if the test result was negative. Moreover, 28% of the men said they would divorce and not contribute to the child support, and 38% admitted they were bothered even by the thought the child was not theirs and did not know what they would do.

Discussion

It has been observed that the people filing a lawsuit to determine paternity did not attach great importance to confidentiality. However, for the men

who applied in private, confidentiality was the main criterion. They had to be convinced that the data and results would not be disclosed. Actually, concealing the ID information, genetic profiles, and the test results from everyone except for the court and related parties is an obligation in terms of both ethics and law.

Thus, the application form that we use in our department ends with a section inquiring into how they want to receive the test result. They can come to the center to get the result or choose a person to receive the report. It is not possible to disclose the result over the phone. It has been observed that these basic safeguards alleviated the concerns about confidentiality and enhanced trust in the laboratory.

It has been observed that men who came to the center with a relative were not inclined to talk much; instead, their relative would explain what happened in detail and the reasons for their suspicion. It was noted that the majority of fathers being present with the child wanted to be processed immediately and leave.

Ideally, from the technical point of view, samples taken from the mother, father, and child must be analyzed; however, it is not compulsory to analyze the sample provided by the mother. The motherless test concept means that the mother cannot be reached, or the mother agrees to the test, but is not being tested, or a DNA sample is taken from the child to be compared only with the DNA profile of the father without informing the mother. If the child is over 12 years of age and capable of understanding the implications of the test, another approach would be to admit him/her for DNA testing without the presence of the mother (21). Data published in Australia in 2003 show that in 20% of paternity tests one of the parents was present and the other party, usually the mother, did not know about the test (22). In 72% of the cases in our study, the father took the child to the testing facility, and in more than half of these cases, the mother was not informed about the test. The rest of the mothers were present at the department or were not willing to be present although informed about the test as assured by the men.

Testing without obtaining the consent of one of the parents is legally and ethically under discussion. People arguing that the test can be done without telling the mother claim that the man has the right to know whether or not he is the biological father of the child, and that this right should not be dependent upon permission granted by the mother. A mother who knows that the man is not the biological father of her child and does not tell him that, but who has the right to criticize the paternity test or to not permit it keeping the man as a mere "wallet" or "means of income", would only be unequal and unfair, as interpreted by fathers' rights activists. Furthermore, proponents of this view claim that a father-and-son relationship, which did not exist before because of the suspicion, is established between the child and the man whose paternity is confirmed by the DNA test. Those who think that a DNA test, if necessary, should

be carried out with the consent of both parents claim that the man does not often have any doubt that he is the father, but wants to evade material and moral responsibility for the child, gain time, and humiliate the woman (23,24).

Men who were single or married to someone else and who wanted the test to prove/disprove the paternity of the extramarital child said the test would have a direct impact on their lives. Single men stated they would decide on marrying the mother based on the test result. Some of the married men whose paternity of the extramarital child was confirmed claimed their wives would not forgive them, their marriage would end, and were concerned about assuming responsibility for the care of the child. In an interesting case, the man coming to the center was accompanied by the woman whom he was having an extra-marital affair and child, but he came to the center to get the test result with his wife. His wife noted that their marriage would continue and the child would be raised by them if her husband was the biological father of the child.

Some married men admitted their marriage was not going as well as it had been, and would use this situation as an excuse to end it even if the child proved not to be theirs. It has been noticed that men, who wanted to leave their wives or even find an excuse to "get rid of" their children, considered the paternity test as an opportunity to do so.

The child's knowing about the test is another aspect of the situation. It has been observed that the majority of children did not know they were subjected to a paternity test, and were not prepared to give a blood or saliva sample, asking why it was being done. It was interesting to note that although half of the fathers said their child should know why the test was conducted when s/he was old enough to understand it, they did not tell their child after all. Those who provided a contradictory answer pointed out they did not inform the child because they thought s/he would not understand and be hurt. We could say that informing the child before sample-taking is less inductive to a traumatic sample-taking process. Furthermore, to prevent any emotional hurt, one should not be in the same room with the child when talking to the parents.

When the father was asked why he deemed a DNA test necessary, he answered that the color of hair, eyes and skin and other physical characteristics were not alike (18%/main reason). This is normal in the transfer of genetic features, but becomes a problem due to ignorance. Although the participants of the study were told this was genetically possible, men were not convinced and undertook the DNA test. Two fathers said after suspicion had arisen they developed health problems such as arrhythmia, hypertension, and sleeping and eating disorders. "Jokes" made by close or distant acquaintances about the lack of resemblance between father and child were more effective than expected. One of the participants admitted considering suicide because of his friends talking implicatively on the matter. Another reason for DNA testing was the environment around the mother making rumors that she had an affair with someone else. The mothers who came to our department said their husbands were experiencing psychological problems due to suspicion, and they could not bear it any longer and wanted to come clean, which shows the psychological aspect of the paternity test.

Another striking outcome of our study is that, in extended families, the grandfather or grandmother pressured their son to check up on his biological lineage. In places where the people have traditional values and mostly due to lack of economic means, men usually continue to live on with their parents after getting married. Six percent of the men participating in our study told us they had the test done upon request and pressure of their father, who paid for the expenses. These men asked, even if the test was negative, not to inform the grandfather, and, if possible, that a false document be issued showing they were the biological father. The reason for being so desperate to ask for a counterfeit document was their love for their wives and children and unwillingness to separate from them. Tragically, they admitted they would eventually separate from their wives and children due to social pressure if it was found out that they were not the biological father.

Reasons such as preterm birth and an anonymous call claiming the child is from someone else, and the like are presented in Table 1. An interesting reason raising suspicions is that the mother exclaimed her child could not be from her husband during an argument with him. These words supposed to

humiliate the man were not perceived by him as words with no substance uttered in the spur of the moment. They had a greater impact than intended, according to the men who took the paternity test.

As for doubts about the paternity in connection with domestic violence, it was remarkable that half of the fathers said they resorted to violence sometimes or often. Some men thought they had sleeping disorders, hypertension, and similar illnesses associated with the suspicion and were more irritable. Some men tried to continue caring for their wives and children without disclosing their feelings and concerns, and some others admitted they were more aggressive than before. Some of the men said they constantly suppressed emotions due to the dilemma of "the child looks like me, but what if s/he is not mine?" or "the child doesn't look like me, but what if s/he is?", and sometimes they were not able to exercise self-restraint and resorted to violence. One man admitted he felt remorse after becoming violent, after which he did not want to return home.

Some studies as to whether the suspicion that might have led men to stop practicing self-restraint and resort to violence is based on right causes may provide some ideas. In the first of the 2 studies in which we assessed the applications for paternity testing, the exclusion rate was about 20%, and, in the second one, the rate was 28% (25,26). This rate is 24%-32% in the studies conducted in various countries. These rates might be considered high but it is only natural that in centers where specific tests are done the rate is higher than those in the society in general. In our opinion, what should actually be dwelt upon regarding the results of paternity tests is ignored. While the exclusion rate is 20%-30%, the inclusion rate is 70%-80%. Seen in this perspective, the suspicion of the majority of the men, who do not establish close links with their wives and children and even sometimes resort to violence, proves to be futile.

In some cases, uncertainty about the paternity made men overskeptical. Some were inclined to think that the mother would tell the lab about the difficult situation they were in asking for the results to be changed to prevent the dissolution of her family. Such suspicions make men disbelieve the test result and repeat it several times after confirmation of the paternity. Although these are signs of psychological

problems experienced by men, they should be taken seriously. Our center appoints separate staff to register and take samples in order to avoid emotional involvement. The latter is not involved in the technical analysis. Persons concerned that the result was being tempered with were convinced of the opposite after being told about this practice.

The question asked by Turney (2006) was “is biology everything or nothing?” Biology is everything for men who just want to pay alimony and who are not able to have close ties with their child, while biology is nothing for men who have established a deep bond with the child and who do not want to break up this bond, although they are not the biological father of the child. It has been observed that for some fathers the mere thought that the child believed to be theirs and bonded with very deeply is not theirs after all caused great concern. One third of the men who were asked about their future plans for the child depending on the test results said they loved their child and would stay with him/her and take responsibility for him/her even if the result was negative. One fourth of men (28%) said they would cut off any communication with the child and divorce their wife if the test result was negative. Turney determined, in a study with 21 men who took the paternity test, that if the aim was to provide or not provide material support to the child on the basis of the test result the biological father rarely established close contact with the child, and the relationship between a child and a man who found out he was not the bio-father contrary to his beliefs generally got worse or was terminated. Only a few men did not terminate their close relationship with the child, after finding out they were not the biological father (22).

After the DNA test, the parties may divorce and the family union may be dissolved and the child may part with someone whom s/he knew as his/her father. This may induce a lifelong anxiety of losing people whom the child has a relationship with or may give rise to psychological and social adaptation problems. Children, especially the ones who are not old enough and not capable of understanding the situation, might experience more trauma related to the paternity test and the ensuing confusion. Similar to existing studies, we have observed that children are not affected as much by the result as they are by the way this process

evolves and what they experience during it. This is why the child must not witness any discussion involving paternity suspicion, and the most appropriate way to tell the child must be found depending on his/her age and development. Moreover, no matter how sanguine parents act from the beginning till the end of this complex process defined as paternity fraud, they reportedly have difficulties in exhibiting the most appropriate behavior vis-a-vis the child (19,21).

The DNA test is regarded by some as a way to get rid of all obligations coming along with being a spouse and a father, while it is, for some mothers, a way to extract money to support their children. However, paternity testing is not a simple process consisting of going to a center to take the test. It changes the lives of the mother, child, biological father, and alleged father. Deciding to undergo the test, going to the testing facility with the child, anticipating the result, and solving the matter based on the test result may give rise to serious psychological problems. Thus, before the test, both the mother and the alleged father have to think carefully about how a positive or a negative result will impact the child's life, their lives, and that of their families. The focus must always be on the least possible adverse effect on the life of the child. As a matter of fact, the life of the whole family will be affected by this new circumstance. It has been frequently observed, with applicants arriving at our facility, that grandmothers, grandfathers, and other relatives are very anxious and unhappy about the thought of having to part with the child.

According to evolutionary psychologists, a natural phenomenon underlies the basis of the suspicion of kinship in human beings. While the men want to spread their genes by having relations with as many women as they can, women search for the best genes (27). Whatever the cause is, the suspicion that a man is or is not the biological father of a child affects individuals and family structures and gives rise to social problems. There is a need for psychological and sociological studies for the benefit of the man, woman, and the child. The results to be obtained from comprehensive and multidisciplinary research enable the centers where the tests are performed to give psychological support and provide some arrangements regarding security for the women and children in risky cases.

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