

Transmission of Traits through Sperm Cells in the Light of Qur'an Hadith and Genetics

Prof. Dr. Nisar Muhammad¹, Dr. Salim ur Rahman², Dr. Muhammad Riaz³,
Muhammad Fayaz⁴, Muhammad Shah³

¹Professor in the Department of Islamic Theology Islamia College Peshawar Pakistan.

²Associate Professor in the Department of Islamic theology Islamia College Peshawar Pakistan.

³Assistant Professor in the Department of Islamic and Religious Studies, Hazara University Mansehra.

⁴Assistant Professor in the Department of Islamic and Religious Studies Hazara University Mansehra.

⁵Phd scholar in the Department of Islamic and Religious Studies Hazara University Mansehra.

Received: July 4, 2016

Accepted: September 11, 2016

ABSTRACT

Allah Almighty has selected Muhammad (PBUH) as messenger to guide the mankind. Allah also revealed a book of guidance (the Holy Quran) this claim has been endorsed in many verses of the Holy Quran, that Holy Quran is a book of guidance for all human beings. The entire humanity be they Doctors Engineers, Scientists, Generals, Statesmen, Philosophers and the like, can find guidance in the Holy Quran about their respective field of interest. The Holy Prophet MUHAMMAD (PBUH) further elaborated the exegeses of the verses of the Holy Quran which is called AHADITH. Quran and hadith has discussed embryology as an important branch of medical science. With the help of modern scientific instruments man has not only discovered new facts about the baby in the womb of a mother, but also bring about the transmission of characters from one generation to the next. In the present research paper introduction to genes, inheritance, and other relevant information has been discussed in the light of Quran Hadith and genetics.

KEY WORDS: Holy Quran, Hadith, genes, inheritance, traits and characters.

INTRODUCTION

Embryology is a branch of medical science which deals with the creation of a new body in womb of a mother. It also discusses the formation of gametes both in male and female. The female gamete is called ovum which is formed in the ovaries while the male gametes are formed in the testes and is called sperm cells. The Holy Quran has used the word "Nutfah" for both male and female germinal fluids.

The word Nutfah has been used twelve times in the Holy Quran. Few verses are as follow.

1) خَلَقَ الْإِنْسَانَ مِنْ نُطْفَةٍ فَإِذَا هُوَ خَصِيمٌ مُبِينٌ (1)

He created man from a drop, and soon he turned into a debating person, expressing himself openly.

2) قُلِّلَ الْإِنْسَانُ مَا أَكْفَرَهُ ۚ مَا أَكْفَرَهُ ۚ ۱۷ مِنْ أَيِّ شَيْءٍ خَلَقَهُ ۚ ۱۸ مِنْ نُطْفَةٍ خَلَقَهُ فَقَدَرَهُ (2)

Damned is the man! How ungrateful he is! from which stuff did He (Allah) create him? from a drop of semen. He created him, and designed him in due proportion.

3) أَكْفَرْتِ بِالَّذِي خَلَقَكَ مِنْ تُرَابٍ ثُمَّ مِنْ نُطْفَةٍ ثُمَّ سَوَّاهُ رَجُلًا (3)

Do you deny him who created you from dust, then from a drop (of semen), then He made you a perfect man

IMPORTANCE OF EMBRYOLOGY

The creation of human beings is the specialty of Allah Almighty. Therefore the Holy Quran has given special attention to this science. In the first revelation (Wahi وحى) Allah has discussed this special branch of medical science.

أَفْرَأَ بِاسْمِ رَبِّكَ الَّذِي خَلَقَ ۚ ۱ خَلَقَ الْإِنْسَانَ مِنْ عَلَقٍ ۚ ۲ أَفْرَأَ وَرَبُّكَ الْأَكْرَمُ ۚ ۳ الَّذِي عَلَّمَ بِالْقَلَمِ ۚ ۴ عَلَّمَ الْإِنْسَانَ مَا لَمْ يَعْلَمْ (4)

Read with the name of your lord who created (everything) he created man from a clot of blood. Read and your Lord is the most gracious. Who imparted knowledge by means of the pen. He taught man what he did not know.

The Quran and Hadith has divided the Nutfah or gamete into three categories

1. Male Gamete (نطفة الرجل)

*Corresponding Author: Prof. Dr. Nisar Muhammad, Professor in the Department of Islamic Theology Islamia college Peshawar.

2. Female Gamete (نطفة المرأة)
3. Mingled Gamete (نطفة الإِشْاح)⁽⁵⁾

1 **MALE GAMETE:**

The Holy Quran describes the male germinal fluid as (منى) or semen which is discharged during male orgasmic ejaculation. (6) *الم يك نطفة من منى يمى* (6) was he not an ejaculated drop of semen? Semen consists of other secretions from the genetic glands which facilitates the movement of the sperm towards the ovum. The functions of these secretions is to lubricate the area in both the male and female genetical organs.

Microscopic analysis has revealed the following facts.

- A: Volume for a normal human being is from 1 cc to 5 cc
 - B: 1 cc of semen contains nearly 100 million sperm cells⁽⁷⁾
 - C: The length of the sperm cells is usually about 60 microns (1 micron is equal to 1/200 of millimeter).
 - D: Semen also contains some portion of fructose to function as preliminary nourishment for the sperm cells for the duration of its movement towards the ovum in the fallopian tube. (8)
- 2 **Ovum:** Ovum are produced in the ovaries which are situated at the top side of the womb. In both the ovaries the number of eggs or ovum produced in the mature female are about 30 to 40 thousand. The structure of an ovum is totally different than a sperm. It is totally round in shape. The size of an ovum is about 120 microns and it is the largest cell produced in the human body.⁽⁹⁾
- 3 **Mingled gamete or nutfa-tul-Amshaj (نطفة الإِشْاح):** After copulation when the male and female gamete gets mixed up and the ovum is successfully fertilized. The mixed gamete comes into existence. At this stage, it is called Zygote. This Zygote after fixing itself to the wall of womb will change its nature into different shapes such as Alaqa (علق), Mudghata (congealed blood) (مضغة). Laham, flesh (لحم) and Ezam, bones (عظام) and then into a formal human body.⁽¹⁰⁾
- In this research paper the role of Nutfa-tul-Amshaj or mingled gamete will be discussed. The role of inheritance of qualities through genes will be elaborated in detail.

The Quran has described the role of inheritance of qualities through genes in the following verses:

قَتَلَ الْإِنْسَانَ مَا أَحْقَرَهُ ۚ ۱۷ مِنْ أَيِّ شَيْءٍ خَلَقَهُ ۚ ۱۸ مِنْ نُطْفَةٍ خَلَقَهُ فَقَدَرَهُ ۚ (11)

Damned is the man! How ungrateful he is from which stuff did he (Allah) create him? From a drop of semen! He created him, and designed him in due proportion.

In Arabic Lexography “Qadar” (قدر) means

1. To decides about the nature of something
2. To plan for something.
3. To evaluate the quality of something

But when it is used about the embryo and its future role and its place in the general creation, then it means prediction about the character of the expected baby who is to come into existence in the future.

It is a universal fact that some characteristics are inherited from the ancestors. These characteristics are transmitted from one generation to other, through genes.

Modern research has proved that characteristics of a person may reappear even hundreds of years later in his descendants. From Islamic point of view these characteristics can be traced back to the progenitor of all humanity that Adam and Eve. The evidence can be found in the following ahadith of the Holy Prophet Muhammad (صلى الله عليه) .

عن ابن ابي رباح روى الله عتا ان النبى صلى الله عليه وسلم قال:

ما ولد لك؟ قال يا رسول الله وما عسى ان يولد لى اما غلام اور جارياً قال فمن يشب قال ما عسى ان يشب ام امه او ام ابى قال لا النبى صلى الله عليه وسلم ها لا تقولن كذا لك ان النطفة اذا استقرت فى الرحم احضرها الله عز وجل كل نسب بينهما وبين آدم ا ما قرأت هذه الاية فى كتاب الله فى اى صورة ماشاء ركبك (الانفطار 8:82)

1. It is reported by Abi Rabah that the Prophet peace be upon him said: what is your child? He replied: Oh Messenger of Allah! It is possible that I will (soon) have a son or a daughter. The Prophet asked him: who will he look like? He replied: Oh Messenger of Allah! He may possibly look like his father or his mother. The Prophet peace is upon him said at this: Stop! You must not say like this. When the drop (of semen) stabilizes in the womb, Allah connects its relationship until Prophet Adam. Didn't you read this verse in the Book of Allah, “In whatever form He willed, He put you together”.⁽¹²⁾

ان النطفة اذا استقرت فى الرحم احضرها الله كل نسب بينهما وبين آدم فركب خلق فى صورة من تلك الصور (فى صورة ماشاء ركبك) اى من نسلك ما بينك وبين آدم

2. When the semen settles (become stable) in the womb, Allah connects its relationship until Prophet Adam. Then, He makes it face resembling any one of those faces... ((في اى صورة ماشاء ركبك)) (13) So the meaning of this verse is that your generational chain connects to Prophet Adam. (13)
إذا اراد الله ان يخلق النسمة فجامع الرجل المرأة طار مأوء في كل عرق وعصب منها فاذا كان اليوم السابع احضرها الله كل عرق بيثا وبين ادم (الدر المنتور في تفسيران الماتور)
3. Imam Malik Narates this Hadith from the Holy Prophet as follow
When Allah intends to create a human (as a consequence of intercourse) and a man does intercourse with his woman, the water spreads/combines in each of her vein and joint, it is on the seventh day that Allah connects the relationship between it and the Prophet Adam (14)
قال الحسن والمجاهد في قول الله في اى صورة ماشاء ركبك اى في اى شيا اب اور ام او خال او عم اما طويلا واما قصيرا اما حسنا واما قبيحا (الدر المنتور في تفسير الماتور)
4. Hasan and Mujahid opine regarding the explanation of the saying of Allah (In whatever form He willed, He put you together) that it means (Allah creates it in) resemblance with father, mother, maternal uncle or paternal uncle or (resemblance in) tallness, shortness, beauty or ugliness. (15)

AN INTRODUCTION TO GENETICS:

Every cell in the body with a nucleus (a compartment in most cells) has the same complete set of genes. A gene is made of DNA (deoxyribonucleic acid) and is basically a type of genetic instruction. Those instructions can be used for making molecules and controlling the chemical reaction of life. Genes can also be passed from parent to offspring; this is inheritance.

Genetics is the study of genes, genetic variation, and heredity in living organisms. It is generally considered a field of biology, but it intersects frequently with many of the life sciences and is strongly linked with the study of information systems¹⁶

The word genetics stems from the Ancient Greek *genetikos* meaning "genitive"/"generative", which in turn derives from *genesis* meaning "origin"¹⁷. James Watson and Francis Crick determined the structure of DNA in 1953, using the X-ray crystallography work of Rosalind Franklin and Maurice Wilkins that indicated DNA has a helical structure (i.e., shaped like a corkscrew)¹⁸.

Although the structure of DNA showed how inheritance works, it was still not known how DNA influences the behavior of cells. In the following years, scientists tried to understand how DNA controls the process of protein production¹⁹.

It was discovered that the cell uses DNA as a template to create matching messenger RNA molecules with nucleotides very similar to DNA. The nucleotide sequence of a messenger RNA is used to create an amino acid sequence in protein; this translation between nucleotide sequences and amino acid sequences is known as the genetic code²⁰.

(إِنَّا خَلَقْنَا الْإِنْسَانَ مِنْ نُطْفَةٍ أَمْشَاجٍ نَبْتَلِيهِ فَجَعَلْنَاهُ سَمِيعًا بَصِيرًا) (الإنسان:2:76)

“Verily We created man of a fluid-drop (*nutfah*), mingling (*amshaj*), in order to try him: so We gave him (the gifts of) hearing and sight.” (76:2).

The mingled *nutfah* in this verse reveals the Quran miraculous nature. *Nutfah*, in Arabic, is a single small drop of water, but it was described here as *Amshaj*, which means its structure consists of combined mixtures.

This fits with the scientific finding, as the zygote is shaped as a drop, and is simultaneously a mixture of male fluid chromosomes and female ovum chromosomes.

In simple words genes can be defined as follow.

Genes are bio chemical carriers of biological information from one generation to the next” (William Boyd)

Molecular basis for inheritance:

The molecular basis for genes is deoxyribonucleic acid (DNA). DNA is composed of a chain of nucleotides, of which there are four types: adenine (A), cytosine (C), guanine (G), and thymine (T). Genetic information exists in the sequence of these nucleotides, and genes exist as stretches of sequence along the DNA chain²¹.

It is noteworthy that regardless of the offspring’s sex, cytoplasmic inheritance is exclusively maternal. Actually, cytoplasm contains exclusively maternally inherited mitochondria, which harbor tiny circular DNA molecules that contain 37 of our genes. The genetic balance is, therefore, in favor of mothers.²²

In addition, this is especially true in male offspring who inherit their long sex chromosome X from their mothers but their short sex chromosome Y from their fathers. The X chromosome is much larger (154,913,754 base pairs versus 57,741,652 base pairs) and contains many more genes (1,846 versus 454) than the Y chromosome. This results in more maternal than paternal genetic participation in our development²³.

Viruses are the only exception to this rule—sometimes viruses use the very similar molecule RNA instead of DNA as their genetic material. Viruses cannot reproduce without a host and are unaffected by many genetic processes, so tend not to be considered living organisms²⁴.

DNA normally exists as a double-stranded molecule, coiled into the shape of a double helix. Each nucleotide in DNA preferentially pairs with its partner nucleotide on the opposite strand: A pairs with T, and C pairs with G. Thus, in its two-stranded form, each strand effectively contains all necessary information, redundant with its partner strand. This structure of DNA is the physical basis for inheritance: DNA replication duplicates the genetic information by splitting the strands and using each strand as a template for synthesis of a new partner strand²⁵. Keeping in view the above technical detail we can simply define heredity as follow.

“Heredity is the process of the perpetuation of the species” (welter and Israel).

Genetic code

Genes generally express their functional effect through the production of proteins, which are complex molecules responsible for most functions in the cell. This messenger RNA molecule is then used to produce a corresponding amino acid sequence through a process called translation. Each group of three nucleotides in the sequence, called a codon, corresponds either to one of the twenty possible amino acids in a protein or an instruction to end the amino acid sequence; this correspondence is called the genetic code.

Some DNA sequences are transcribed into RNA but are not translated into protein products—such RNA molecules are called non-coding RNA. In some cases, these products fold into structures which are involved in critical cell functions (e.g. ribosomal RNA and transfer RNA). RNA can also have regulatory effects through hybridization interactions with other RNA molecules (e.g. microRNA)²⁶.

A gene is expressed when it is being transcribed into mRNA and there exist many cellular methods of controlling the expression of genes such that proteins are produced only when needed by the cell. Transcription factors are regulatory proteins that bind to DNA, either promoting or inhibiting the transcription of a gene²⁷.

Sequencing and mapping:

The first complete genome sequences among all three domains of life were released within a short period during the mid-1990s: The first bacterial genome to be sequenced was that of **Haemophilus influenzae**, completed by a team at **The Institute for Genomic Research** in 1995. A few months later, the first eukaryotic genome was completed, with sequences of the 16 chromosomes of budding yeast **Saccharomyces cerevisiae** published as the result of a European-led effort begun in the mid-1980s. The first genome sequence for an **archaeon**, **Methanococcus jannaschii**, was completed in 1996, again by The Institute for Genomic Research²⁸.

CONCLUSION

Keeping in view the above mentioned ahadith and latest information of science of genetics, it is pertinent that genes play a pivotal role in the transmission of traits (tallness, beauty, ugliness, aggressive or submissive behavior etc). A special character in a particular baby which is missing in his/her parents it does not mean that the baby is illegitimate. This particular character may be available in the strips of this couple hundred years back, but was in the genes in recessive form. This particular character can re-appear in the next generation even after hundreds of years.

The above mentioned ahadith clearly indicate that if a particular character of parents could not appear in the offspring, the parents should not be worried about it. May be this character was available in the previous generations of this couple.

REFERENCES

1. Holy Quran An Nahla 16:4
2. Holy Quran, Abas 80:17
3. Holy Quran Al Kahaf 18:37

4. Holy Quran Al Alaq 96:1-5
5. Holy Quran Ad Dahar 76:2
6. Holy Quran Al Qiyamah 75: 37 (ii) Quran An-Najm-53:46
7. (i) AA Maximow and W.Bloom A text book of histology pp: 503, 504 W.B. Saunders phlodelphia, 1957
(ii) Wolf, Clinical embryology P:10 hott sounders New York, 1981
(iii) B.I. Bailansky, An introduction to embryology P:6, hott Sounders New York,1981.
8. (i) Ben Pansky, review of Medical embryology P:6 Mac Millan publishing co. New York, 1982
(ii) Ibed-7
9. (i) Dr. M. Ali Albar Human development as reveled in the Holy Quran and Hadith, PP: 32-34 Saudi publishing and distributing House, Jeddah. Saudi Arabia
(ii) Jan Longman Medical Embryology P-32, the willams and wilkins co Baltimore USA, 1975
10. Holy Quran Al-Mu'minin 23: 13-14
11. Holy Quran al Abas 80: 17-19
12. (i) Mo'jan Al-Kabeer (At-Tebrani) vol: 5, P:74 Dar-an-Nashr Maktaba Ibn-e-Temiya, Cairo, Egypt.
(ii) Tabari, Jame-Al-Bayan- fe-Tafseer-el-Quran, Vol 30, P: 55. Dar-ul-Marefah Bairut.
13. Jalal-ud-din sayyote, ad-Dur-Al-Mansoor Fe-Tafseer Al- Mathoor Vol:6 P: 323 Qum, Iran, 1402 Hejra
14. Jalal-ud-din sayyote, ad-Dur-Al-Mansoor Fe-Tafseer Al- Mathoor Vol:6 P: 323 Qum, Iran, 1402 Hejra
15. Jalal-ud-din sayyote, ad-Dur-Al-Mansoor Fe-Tafseer Al- Mathoor Vol:6 P: 323 Qum, Iran, 1402 Hejra
16. Griffiths, Anthony J. F.; Miller, Jeffrey H.; Suzuki, David T.; Lewontin, Richard C.; Gelbart, eds. (2000). "Genetics and the Organism: Introduction". *An Introduction to Genetic Analysis* (7th ed.). New York: W. H. Freeman.
17. "Genetikos". Henry George Liddell, Robert Scott, A Greek-English Lexicon. Perseus Digital Library, Tufts University. Retrieved 20 February 2012.
18. Watson, J. D.; Crick, FH (1953). "Molecular Structure of Nucleic Acids: A Structure for Deoxyribose Nucleic Acid"(PDF). *Nature*. **171** (4356): 737-8. Bibcode:1953Natur.171..737W.
19. Frederick Betz (2010). *Managing Science: Methodology and Organization of Research*. Springer. p. 76.
20. Stanley A. Rice (2009). *Encyclopedia of Evolution*. Infobase Publishing. p. 134.
21. Pearson, H (2006). "Genetics: what is a gene?" *Nature*. **441** (7092): 398–401.
22. Chan DC. Mitochondria: dynamic organelles in disease, aging, and development. *Cell*. 2008;125:1241–52. <http://doi.org/bcsbj4>. [PubMed]
23. `Abd al-Rahīm b. al-Ḥusayn b. `Abd al-Rahmān aka al-Ḥāfīz Al-`Irāqī. *Takhrīj aḥādīth al-iḥyā`*. Vol 2, Chapter 2: Fīmā yurā`ā hāla al-`aqd. ḥadīth No. 4. <http://muhaddith.org>
24. Prescott, L (1993). *Microbiology*. Wm. C. Brown Publishers. ISBN 0-697-01372-3.
24. Griffiths, Anthony J. F.; Miller, Jeffrey H.; Suzuki, David T.; Lewontin, Richard C.; Gelbart, eds. (2000). "Mechanism of DNA Replication". *An Introduction to Genetic Analysis* (7th ed.). New York: W. H. Freeman.
25. Berg JM, Tymoczko JL, Stryer L, Clarke ND (2002). "I. 5. DNA, RNA, and the Flow of Genetic Information: Amino Acids Are Encoded by Groups of Three Bases Starting from a Fixed Point". *Biochemistry* (5th ed.). New York: W. H. Freeman and Company.
26. Brivanlou, AH; Darnell Jr, JE (2002). "Signal transduction and the control of gene expression". *Science*. **295** (5556): 813–8.
27. Zimmer, Carl (December 18, 2013). "Toe Fossil Provides Complete Neanderthal Genome". *New York Times*. Retrieved 18 December 2013.