

## Consanguinity (Tulyagotriya Vivaha) Impact on Child Health: A Review Literature

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### ABSTRACT

Ayurveda the ancient Indian medical system, is based on ancient writings that rely on a “natural” and holistic approach to physical and mental health. Ayurvedic medicine is one of the world's oldest medical systems and remains one of India's traditional health care systems. Ayurved cover every aspect of human beings life i.e. physical, psychological, social and related to soul. Ayurvedic Acharya mentioned Atulyagotriya marriage concept right from Samhita Kala and explained bad effect of Tulyagotriya marriages. Many Acharya like Charka, Kashyapa and Bhela explained specific topic regarding Atulyagotriya/Asamana gotriya Sharira. Genetics plays an important role in human life it states that every individual is different in physical characteristics and mental behaviour; all these are based on the genes which carry them. The importance of such individual variations in health and disease is an important basic principle of Ayurveda which is explained by Acharya. The context of Atulyagotra will be interpreted with the present concept of genetics. Consanguinity is both a social and genetic concept. Generally, it refers to marriage or a reproductive relationship between two closely related individuals. The degree of relatedness between two individuals defines the proportion of genes shared between them.

**KEYWORDS:** *Atulya gotra, Tulya Gotra, Asamana gotra, Consanguinity, Autosomal recessive Disorder*

### INTRODUCTION

India has a great Source of literatures such as Veda's, Puranas, Samhita's etc. these literatures are great source of knowledge regarding rituals, lifestyles, health related information etc. Ayurveda is an ancient system of life science and is one of the world's oldest holistic healing systems. Ayurveda not only deals with irradicate diseases, also describes to keep the health of a healthy person by the qualitative and quantitative promotion of life and maintaining a balance between mind, body and spirit. Acharyas mentioned concept of Dincharya<sup>1</sup>, Ritucharya<sup>2</sup>, Sadhvrita Palana<sup>3</sup> and Atulyagotriya, etc. for maintaining the healthy state of body. In day to day practice one can get many children with genetic disorders of consanguineous parents. In Ayurveda ages ago Importance about Atulya gotriya Vivaha<sup>4,5</sup> and Asamana gotriya<sup>6</sup> (Non Consanguineous

marriages) were mentioned as a part of preventive pediatrics for disease free community because tulya gotra population will have genetic homogeneity which may leads to expression of abnormal genetic traits Concept of Atulya Gotra Vivaha has been strictly followed in Indian traditional marriages. Matching the horoscopes of both male and female partners commonly practiced in Indian Marriages which incorporate concept of Atulya gotra. Ayurveda took extreme precautionary methods to prevent chromosomal disorders by Atulyagotriya Vivaha where even minimal chances of chromosomal disorders transmitting to the next generation is prevented. Many Acharya like Charka, Kashyapa and Bhela explained specific topic regarding Atulyagotriya / Asamana gotriya Sharira.

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### Concept of Atulyagotriya

Many Acharya like Charka, Kashyapa and Bhela explained specific topic regarding Atulyagotriya/Asamana gotriya Sharira.

In former times Gotra system was genetically very efficient, later on this changed into system based on caste status etc., due to which social, economic problems started in all norms by leaving behind the principles of ancient system everything changed into a ridiculous manner like on the basis of reservation hence so many people are suffering from dreadful conditions.

According to Charak also Explained Atulyagotra Marriage in that the Person who is healthy and desire of a healthy child should enter in to Sexual Intercourse with a women who belongs to different Gotra who is free from disease, who is sexually excited, cheerful and attained taken her post Menstrual clean bath.

Acharya told that, when a woman after her menstruation cohabits with a man of a different clan in a lonely place, the man ejaculates something composed of 4 Mahabhuta's and having 6 Rasa, which results in conception in a woman<sup>7</sup>

According to Chakrapani Datta (CD) Ayurveda Pradipika Chakrapani Explained that For the Development of Embryo the man should be Different Gotra.

As per Dharma shastra .It is not auspicious to have sexual in Factor with simillar Gotra Person. So maithuna with Tulyagotra Person is Contra indicated by Dharmashastra.

Kashyapa described Asamangotriadyaya, but detail regarding the topic is missing from the chapter, only Masa Anumashika Vrudhikrama is available in this chapter.

According to Maharsi Bhela he explained about asamana Gotriya in the Bhela Samhita Sarira sthan 3rd Chapter Asamana Gotriya Sharira that One should go to a lady of a different lineage after she bathed after menstruation then She will give birth to a son who is brilliant and disease free. Just as a plant does not grow very well, nor imperfect manner, so does the foetus get destroyed by the blemishes of mother and father.

So the Asaman gotriya couple should have nourished 1st themselves perfectly with proper food and rasas then go into union together in Secrecy, both remembering the Supreme God in their minds. Acharya Sushruta while classifying diseases described Aadibala Pravruta Vyadhi which means the diseases grouped under any abnormalities in genes

and said as Asadhya. There are so many references regarding individual's genetic potential and different genetic disorders. concept of genetics given by Acharya Charaka will be interpreted with the present concept of genetics, detail consequences of above said factors and to educate the families because most of who are practicing these marriages are illiterate hence the proper guidance related to hazards of consanguineous marriages on health of the progeny has to be explained to them. According to Ayurveda for the formation of Garbha (Embryo), Shukra (sperm) and Shonita (ovum) along with Aatma (soul) is called as Garbha (embryo). Abnormality in these factors can land up in congenital anomalies. Factors like diet, exercise, alcohol, stress, exertion etc can affect mother and fetus. Garbha is also said to be formed by six factors like Matruja, Pitruja, Rasaja, Satvaja, Saatmyaja and Aatmaj<sup>8</sup>. These are combination of genetic, psychological and nutritional factors.

### MODERN CONCEPT ON CONSANGUINITY

Consanguinity is a term that is derived from 2 Latin words "con" means common and "sanguineus" means blood, referring to a relationship between 2 biologically related individuals. In clinical genetics, Consanguineous marriage is defined as a union contracted between individuals related as second cousins or closer. Chances of inheritance of a mutant allele at the same locus are increased as both parents have a common ancestor. It is estimated that one billion of the current global population live in communities with a preference of consanguineous marriages collectively accounts for 20-50 +% of all marriages in the west Asia, North Africa, Middle east. However in population of Dravidian Hindus of south India consanguinity is common and incidence is about 10-37%, among them incidence in Tamilnadu - 47%, Maharashtra-10% and karnataka-31-37%<sup>9</sup>. The 1960 survey was conducted only in villages whereas the 1992-1993 NFHS collected data from both urban and rural respondents, and in all surveys in South India consanguineous marriage has been shown to be significantly more common in rural areas.<sup>10</sup> Consanguineous marriage is common in all Indian Muslim communities.<sup>11</sup> The excess risk that an autosomal recessive disorder will be expressed in the progeny of a consanguineous union is inversely proportional to the frequency of the disease allele in the total gene pool. The Consanguinious marriage system has been reported as an important factor in the appearance of Autosomal recessive diseases<sup>12,13</sup>, like congenital anomalies, Inborn Error of Metabolism, Haemoglobinopathies, Depression, CHD, Infant mortality, morbidity, spontaneous abortion and still births and so also reported and proved beyond doubt

that consanguinity plays a significant role in mental health problems and other many disorders hence which may causes huge burden on economy of country and medical fraternity. The chance of there being a significant medical problem in the offspring of a consanguineous couple depends on two additive risks: the background population risk and the additional risk due to consanguinity

According to the Clinical Genetics the Consanguineous marriage is categorized into four no of degree.

**1<sup>st</sup> DEGREE CONSANGUNITY:** 1st degree Consanguineous is the marriage between Brother and Sister .Mostly this is not occurs in India. The Sexual relationship between the brother and sister is known as incest. And the common genetic makeup is 50%.Probability of Expression of Autosomal recessive condition is maximal.

**2<sup>nd</sup> DEGREE CONSANGUNITY:** 2nd Degree Consanguinity is the marriage with father's own sister or mothers own brother 25% genetic material in common.

**3<sup>rd</sup> DEGREE CONSANGUNITY:** 3rd Degree Consanguinity is the marriage with father's sisters children or mother brothers children. This type of marriage is more common in India. In which 12% of genetic material in common.

**4<sup>th</sup> DEGREE CONSANGUNITY:** The 4th Degree Consanguinity the marriage between distant relatives. Minimal risk of autosomal recessive diseases amongst consanguineous couple.

### Autosomal recessive disorder

Autosomal recessive inheritance involves mutations in both copies of a gene. Characteristics of autosomal recessive trait include horizontal transmission, the observation of multiple affected members of a kindred in the same generation, but no affected family members in other generations; recurrence risk of 25% for parents with a previous affected child; males and females being equally affected, although some traits exhibits different expression in male and females and increased incidence, particularly for rare trait in the offspring of consanguineous parents<sup>14</sup>.

The trait appear in sibs and not in parents or offspring. Parents of proband may be consanguineous. A heterozygote for an autosomal recessive trait called carrier. The word carrier has different connotation in medicine and genetics.

### Chromosome and Gene

Each Human being has 23 pairs of Chromosomes and in each pair one Chromosome comes from the father and the other comes from the mother. So in all we

have 46 Chromosomes in every cell, of which 23 come from the mother and 23 from the father. Of these 23 pairs, there is one pair called the Sex Chromosomes which decide the gender of the person. During conception, if the resultant cell has XX sex chromosomes then the child will be a girl and if it is XY then the child will be a boy. X chromosome decides the female attributes of a person and Y chromosome decides the male attributes of a person.

### Consanguinity and Risk Factor

Generally speaking, frequency of congenital malformations among newborns of first cousin unions is about 2 times the frequency among the general population. In other words instead of a rate of 2-3% of birth defects in the general population, the risk to first cousin couples is around 4-6%. Consanguinity is a well-known risk factor for genetic disorders, including diseases and syndromes that present with intellectual and developmental disabilities. Congenital heart defect (CHD) is linked to consanguineous marriage.<sup>15</sup> Reported issues include birth defects, genetic diseases, heart and blood diseases, mental disability, hearing problems, asthma, congenital head and neck malformation, and cleft lip or palate. though accepted to have a great impact on general health, the effect of consanguineous marriage on dental development is not fully understood. A clinical study in South India has found that 30% of children with ID were born from parents who had a consanguineous marriage.

### Conclusion-

This study would help to bring to light the concepts related to various branches of genetics described in Charaka Samhita and may bring newer concepts which can be useful in the prevention of such cases to reduce the burden of genetic and developmental diseases in the society. By this study to know the relation between Consanguinity and congenital birth defect and find out the outcomes in offspring's of consanguineous couples.

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