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RESEARCH ARTICLE

CONGENITAL ANOMALIES OF THE KIDNEY AND URINARY TRACT NEOPLASMS AND IN THE ELDERLY.

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Abstract

Introduction: Congenital abnormalities of the kidneys and urinary tract represented a spectrum of malformations often grouped under the acronym for CAKUT. Normal development of the kidneys and urinary tract is the result of the precise interaction, spatially and temporally coordinated, between two structures, the metanephric mesenchyme (which originates from the nephrogenic cord) and the ureteric bud (which originates from nefrico duct or Wolff). Any alteration, it's genetic, environmental, or stochastic, which influence this process can result in kidney malformations and streets urinariedel present study is to evaluate in relation to clinical attention the incidence of risk in neoplastic 'association cancer and malformation. in adults

Materials end Methods: Male patient of 75 suffering from gross hematuria and hernia inquinale sn accompanied by dysuria symptoms, in heavy smoker instrumental ultrasound examination of the urinary tract showed a solid lesion in the posterolateral wall sn aggittante in the bladder lumen The uro-CT examination showed a " abnormality of the urinary tract development with ectopia crusade and merger of the two kidneys located alongside sn (fot, 3.4) of the renal pelvis are addressed before the district complete with double ureteral sn .In at the urethral meatus will highlight a focal thickening protruding into the lumen wall to finely irregular margins, with enhancement after contrast medium. (photo 5.6) the CT examination conducted in the chest (photo 7) confirmed the marked signs of emphysema, the anterior segment of the left upper lobe, in close relationship with bronchus and vessels segmented solid training in margins lobed (29x20 mm axial diameter approximately). At PET-CT accumulation of the tracer in the upper field of the left lung in the paramedian attributable to non-specific reactive process .Fig (8.9), then he performed genetic test that confirmed mutations in the PAX2

Results: The UroCT is the imaging examination with greater sensitivity and specificity. The limit lies in the poor ability to detect flat lesions non-invasive muscle. The urography has been almost entirely supplanted by UroTC. The current biomarkers do not have a sensitivity and specificity greater than urinary cytology, and The aromatic amines, NAT2 and NAT1 of tobacco smoking products, are considered the

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main cause of the vescica.la flexible cystoscopy cancer (Narrow Band Imaging) is being promoted as first-invasive test to be practiced in the patient suspected of having a bladder tumor. Uro-RM, similarly to what happens with the urography and CT, it is possible the study of the urinary tract, in order to seek sincrone. l'associazione urothelial lesions and tumors in malformations has prompted our research towards an evaluation genetics through genetic testing the result of which was the presence of a mutation in the PAX2,

Discussion: Renal abnormalities, according to the classification of Ridson, are divided into: number of anomalies, seat of anomalies, anomalies of form, abnormalities of differentiation, The presence of a double district pyelo-ureter. Observed in the patient was incomplete, with the two ureters who join before leading into the bladder through a common orifice, Figure 3 also the duplicity era asymptomatic, and was accompanied by a fusion anomaly: a horseshoe kidney. It was also present malrotation renaleuna genetic evaluation by performing genetic tests given to the search for possible correlation between cancer and malformation with oncological risk assessment identifies a heterogeneous set of tests designed to identify changes in the DNA sequences of the germline or of the products that are derived directly from the modification of transmissible genomic sequences .. the geographical correlation allows altresi to compare health risk levels allows you to answer the question whether there is a relationship between risk of death or birth defects as evidenced by numerous studies there is a risk increased cancer and malformations in the presence of high socioeconomic deprivation With increasing environmental pressure has been a steady trend in the health risk

Conclusions: Genetic testing can predict with great accuracy the future development of the health of a single individual in the presence of defects is necessary to provide genetic testing for the purpose of assessing the health of the individual. You can assume the major socio-ethical-legal implications for presymptomatic testing, the only genetic tests that can predict with certainty and in the future occurrence of a disease tests for clinical purposes provide information on the health status of subject. Those carried out for research purposes usually generate information that is not indicative of health status or genetic risks of the subject, but it is useful for the purposes of statistical or scientific researc:

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Introduction:-

Congenital abnormalities of the kidneys and urinary tract represented a spectrum of malformations often grouped under the acronym for CAKUT (Congenital Anomalies of the Kidney and Urinary Tract). These malformations can affect one or more urinary structures (kidney, ureter, bladder) and can occur in isolation or in various combinations in the same family or even in the same individual, the CAKUT includes alterations of the renal parenchyma, such as agenesis kidney or hypodysplasia (RHD), and ureteriche abnormalities, such as obstructive stenosis of the joint ureteropelvic junction (UPJO), duplication of the excretory system (DCS), the megaureter congenital stenosis of the joint uretero vaginal bladder (UVJO) and reflux ureteral vesicles (VUR) (1, 2,3,4). This anatomical classification is often not informative .The malformations of the urogenital tract are present in more than 20% of birth defects [5] and can be observed in greater than 1% of live births (6,7). The application of routine ultrasonography during pregnancy has led to an increase of CAKUT diagnosis in pre-natal period. when it occurs at birth or within the first year of life [8]. Children who survive have a mortality rate 30 times higher than children of the same age. Normal development of the kidneys and urinary tract is the result of the precise interaction, spatially and temporally coordinated, between two structures, the metanephric mesenchyme (which originates from the nephrogenic cord) and the ureteric bud (which originates from nefrico duct or Wolff). . Any alteration, it's genetic, environmental, or stochastic, which influence this process can result in kidney and urinary tract malformations. In family forms of

CAKUT, accounting for about 20-30% of cases, the disease segregates in an autosomal dominant form in this case the genetic model that agrees more with the epidemiology is attributable to mutations that give loss-of-function or isomorphic to alleles that produce moderate malformations without significant an impact reproductive fitness. In point monogenic forms an important role in the pathogenesis mainly due to malformations of the kidneys and secondary urianarie ways to mutations in the PAX2, TCF2, SALL1, WT1, SIX1, EYA1 and other genes [9]. These diseases are frequently diagnosed by extra-renal manifestations, which led to the re-evaluation of extra-renal disease of patients with these mutations, resulting in an improvement of the clinical treatment. The degree of clinical variability can in fact be partially explained by the interaction at the expense of three or more of the BBS loci. In fact, it is well recognized that individuals carrying the PAX2 gene mutations may have different phenotypes. This phenotypic variability is due to the fact that all of the urinary components derived from two embryological tissue, the metanephric mesenchyme and the ureteric bud, As a consequence, individual defects in each of these compartments may have a pleiotropic effect on the development of the entire section urinary. The determination of PAX2 [10]. it is also very important for the high risk of the association observed in 20% of patients with congenital anomalies of the kidney and urinary tract diseases and the neurocognitive development, recognition in utero of congenital malformations of the kidneys and urinary tract, give kidney and urinary tract the sentinel role for an early diagnosis can optimize and customize treatment strategies in children with risk of development of other disorders also involving the central nervous system. Finally. Other abnormalities include unilateral or bilateral renal malposition, duplication of the pelvis or ureters (double kidney district) and bladder cancers aim of this study is to evaluate in relation to clinical attention the incidence of risk in neoplastic 'association cancer and malformation . in adult.

Materials and Methods:-

December 2013 to January 2017 at the II Clinical Surgery and digestive surgery department of general surgery and specialized company Polyclinic II University of Catania presents to our patient observation CS male of 75 suffering from gross hematuria and hernia inquinal sn accompanied by symptoms dysuria, in heavy smoker .The patient was subjected to study and instrumental diagnostic ultrasound of the urinary tract showed a solid lesion in the posterolateral wall sn contained in the bladder lumen size of about 19mm. (Fig 1 2)

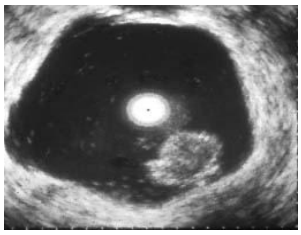

Fig 1:- bladder neoplasm

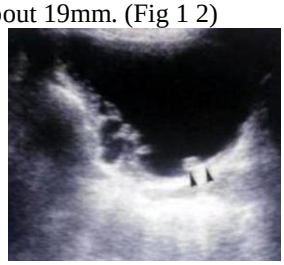

Fig 2:- side elevation

The uro-CT scan showed an "abnormality of the urinary tract development with ectopia crusade and merger of the two kidneys located alongside sn (fot, 3.4) of the renal pelvis are addressed before the district complete with double ureteral

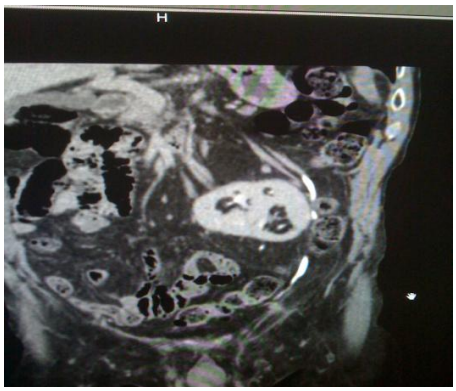

Figure 3:- CT double urinary District

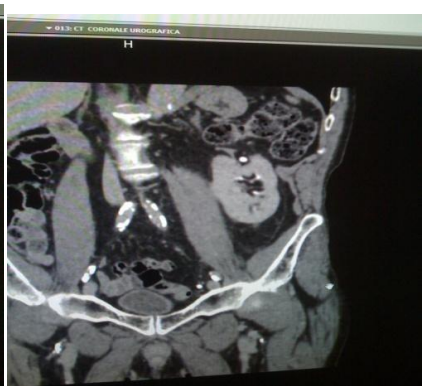

Fig 4:- CT fusion localized kidney to sn

sn .In at the urethral meatus will highlight a focal thickening of the wall jutting into the lumen a finely irregular margins, with enhancement after contrast medium. (Photo 5.6)

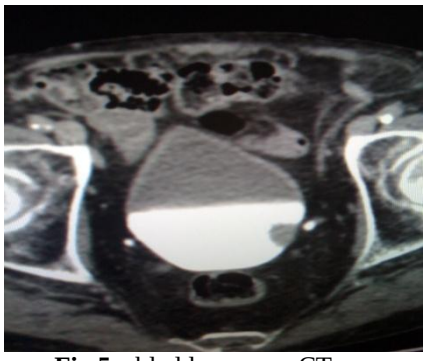

Fig 5:- bladder cancer CT

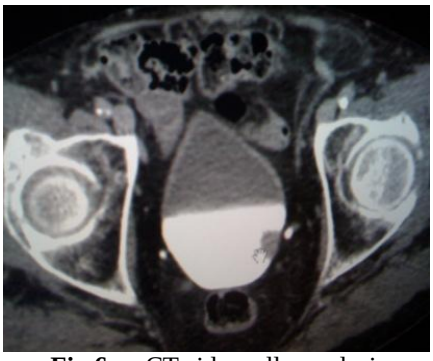

Fig 6 :- CT side wall neoplasia sn

The CT examination conducted in the chest (photo 7) confirmed the marked signs of emphysema, the anterior segment of the left upper lobe, in close relationship with the bronchus and vessels segmented solid training in margins lobed (axial diameters 29x20 mm approx).

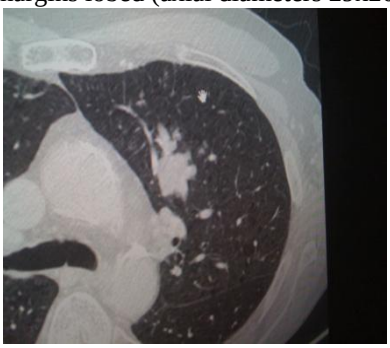

Figure 7:- CT lung neoplasm lobar sup sn

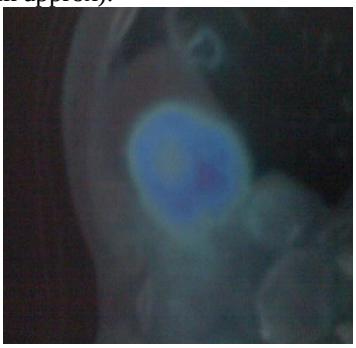

Fig.8:-

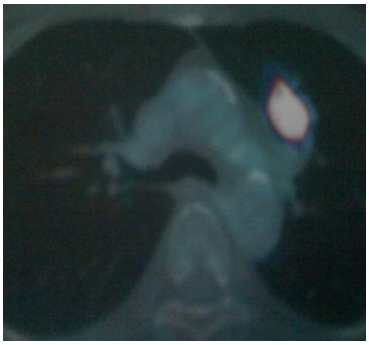

Fig.9:- PET PET accumulation outline reactive process nonspecific

At PET-CT accumulation of the tracer in the upper field of the left lung in the paramedian attributable to non-specific reactive process .Fig (8.9), then he performed genetic test that confirmed mutations in the PAX2,

Results:-

Although there is no evidence to recommend a screening of the first level in the event of gross hematuria, during the consensus conference, the prevailing view (91%) is in favor of 'ultrasound. The sensitivity and specificity may reach 95% without exposing the patient to the risk of ionizing radiation, however, in the absence of scientific evidence about it, the prevailing view (94%) is that the outpatient preoperative cystoscopy in case of positive ultrasound can be omitted . The UroCT is the imaging examination with greater sensitivity and specificity. The limit lies in the poor ability to detect flat lesions non-invasive muscle. The urography has been almost entirely supplanted by UroTC. The current biomarkers do not have a sensitivity and specificity greater than urinary cytology, and The aromatic amines, NAT2 and NAT1 of tobacco smoking products, are considered the main cause of bladder cancer. THE observed patient is a heavy smoker with two neoplastic lesions in different venue. The recent introduction of multidetector CT equipment, has made possible one urinary multiphasic study, executable with higher resolutions both spatial and contrast, allowing the simultaneous evaluation of the renal parenchyma, vascular structures and the urinary tract, as well as all remaining surrounding abdominal structures. In fact it can be a method of imaging "one-stop-shop" that allows you to diagnose the possible cause of hematuria and, in the context of a bladder tumor, and perform an accurate local and remote staging. A methodology of rigorous study of the urinary tract includes at least four phases of acquisition (in basal conditions and in the arterial phase, venous and urographic, after intravenous injection of at least 120-150 ml of iodinated contrast material, with a flow rate of about 2 , from 5 to 3.5 ml / sec), a thin layer (layer thickness of 1-2.5 mm, with reconstruction interval of at least 0.6-2 mm) Fundamental, is also the integration of axial images with reconstructions two- and three-dimensional images, which represent the real added value of multidetector CT, allowing to overcome the inherent limitations axial imaging. (11,12) It is still in the process of validating the utility of virtual cystoscopy in the diagnosis of bladder cancer, which, however attractive method,

does not have to date a real added value in diagnostic terms, except in specific conditions (13.14), it could in fact be performed even in cases where the traditional cystoscopy is contraindicated or in the case of disease localized in a diverticulum .With Uro-MRI techniques, similarly to what happens with the urography and with CT, it is possible study of the urinary tract, in order to seek synchronous urothelial lesions. In this regard, the first developed technique is called "pyelography RM", in which the high weighing sequences in T2 provide imaging of a static fluid, which urine excretory renal axis, without the use of means of intravenous contrast. With these sequences, obtained both in inspiratory apnea with breath synchronization, the urine signal is enhanced by providing an image cast of the lumen of the urinary tract, while the consensual reduction until complete cancellation, the signal from the parenchyma and from the surrounding tissues, it helps to further maximize the signal. It is the ideal method for obstructive uropathy study with varying degrees of dilatation of the urinary tract. Subsequently, there was also the so-called "excretory urography RM", in which the visualization of the renal excretory tract is made possible thanks to the renal excretion of the paramagnetic contrast agent, in a manner entirely analogous to what occurs in conventional urography and in uroTC. As for the CT urography, the two- and three-dimensional reconstructions are performed for complete visualization of the urinary tract. It 'a method to be considered as a valid alternative conventional or all'uroTC urography for the evaluation of the urinary tract, even in the absence of dilation of the same and for the possibility to study the lesions even without use of contrast medium and in the absence of exposure to ionizing radiation the spread of flexible cystoscopy (Narrow Band Imaging) is being promoted as a first-invasive test to be practiced in a patient suspected of having bladder cancer. In the most recent literature is applied a new technique to Flexible cystoscopy: the NBI. The narrow band of light (narrow-band) is strongly absorbed by hemoglobin and penetrates only on the surface of the fabric, increasing the visibility of capillaries and other delicate surface structures through an au resection of the bladder tumor, which was followed by a typing of lung lesion with a needle biopsy CT guided whose outcome he called a borderline malignancy (cancer) which resulted in correlation to patient age implementing a radiation therapy.

Discussion:-

renal abnormalities, according to the classification of Ridson, are divided into: number of anomalies, seat of anomalies, anomalies of form, abnormalities of differentiation, The presence of a double district pyelo-ureter. Observed in the patient was incomplete, with the two ureters who join before leading into the bladder through a common orifice, Figure 3 also the duplicity era asymptomatic, and was accompanied by a fusion anomaly: a horseshoe kidney. It was also present malrotation renale.fig 4 lower poles of the two kidneys are fused, before the aorta, to left over an isthmus formed by fibrous or kidney parenchyma tissue. L 'etiology is probably naturally from the union of the two early research nefrogenici blastema during migration. Kidney fused masses showed two excretory systems and two ureters, therefore the malformation was totally asymptomatic, occasionally diagnosed in the presence of haematuria. Capricious. combine is also the seat of anomalies such as renal malrotation a malformation asymptomatic, relative-frequent mind, caused by a partial rotation of the kidney during the medialisation process. The kidney took the form of an ellipse with goblets oriented medially. finally to complete the clinical picture was present also the 'ectopic kidneys, relatively frequent anomaly. asymptomatic and is manifested only if the renal parenchyma undergoes infections or compressing an abnormal blood vessel dilates the urinary tract. In this uniqueness it is associated the presence of a dual solid education on both the sup sn lobe closely related bronchus and vessels Fig 7,8,9 and another in the bladder trigonal fig 1,2,5,6 .In presence of this association we have performed a genetic evaluation through the execution of genetic tests aimed to research the possible link between cancer and malformation with the cancer risk assessment. With genetic testing expression identifies a test diverse set designed to identify changes in the DNA sequences of the germ line or products which are derived directly from the modification of transmissible genomic sequences. often sick children have inherited the syndrome from parents who, being affected in less severe form, I'm not aware of. Genetic diseases are localized Sui chromosomes, or inside the cell nucleus, and are lined up and organized the genes.(15,16,17,18) A small proportion of genes is extranuclear, as present in the mitochondria (cellular organelles that are inherited from the mother).(19,20,21,22) The alterations of mitochondrial and nuclear genes and, often, the interaction with environmental factors, contribute to identify five main groups of hereditary diseases. a) Chromosomal. They originate from a change in the number or structure of chromosomes. b) Genomic. They are due to the loss or acquisition of a number of genes (often whole segments of DNA, DeoxyriboNucleic Acid, containing tens or hundreds of genes) from a specific chromosomal region. c) Single gene or Mendelian. Due to the mutation of a single gene. They are classified into autosomal diseases, when the gene is not located on the sex chromosomes, and X-linked, in the case in which the disease gene is localized in the female sex chromosome. (23,24,25,26)They are also divided into dominant and recessive diseases, depending on which is sufficient only one copy or two copies of the mutated gene to determine the disease. d) multifactorial or complex. They are due to the additive effect of genes and environment. e) Mitochondrial. They originate from the small

circular chromosome mutation present in multiple copies in the mitochondria. It is a relatively small number of diseases, mainly of neuromuscular interest. in asymptomatic family members, taking into account the psychological and legal implications, as well as medical, accompanying the presymptomatic diagnosis of hereditary diseases, it is necessary that the adoption of a special protocol, which provides for the implementation of an interview in the presence of the geneticist and psychologist.(27,28,29,30) of meetings with the patient and with the help of other specialists reflected on the benefits and risks arising outcome survey genetics, in particular effects on the reproductive and career choices. In order to ensure the autonomy of individual choice, in carrying out predictive testing, it is useful to program only in people older During the counseling is important that we provide the most accurate information on the natural history of the disease and about the advantages and disadvantages of the tools available for the risk reduction, in order to help the patient to make the most appropriate choices in his case. (31,32,33,34)On the basis of personal and family history, or the finding of a mutation prognosis. Special attention is paid to predictive testing, targeted at asymptomatic relatives of patients with an inherited malformation. The first mutational event (M1), which predisposes to the development of the tumor and / or malformation, is due in most cases to truncating mutations: nonsense mutations or deletions / insertions frameshift, located in exons of the gene. genotype-phenotype correlation studies have shown that usually individuals with large deletions of the gene develop a milder phenotype, compared to individuals with other types of mutation with total loss of protein function.(35,36,37,38) The second mutational event (M2) is represented by mitotic recombination (50%) 16, non-disjunctions, with or without duplication (about 40%), microscopic and submicroscopic deletions, point mutations, and inactivation of the gene (10%). The second mutation occurs more frequently than the first 94, and is more sensitive to environmental factors, especially those that determine chromosomal rearrangements, such as ionizing radiation. correlation between the clinical features and the parental origin of the deletion Genetic counseling as part of hereditary diseases or defects, is set up as a communication process, which aims to bring home to patients and their families, the information relating to the characteristics of disease, methods of transmission, the risk of recurrence and possible therapies, including reproductive options, which are relevant to their condition.(39.40.41,42) Key Features of genetic counseling is to not be directed to the whole family, and not having in any way influence the decisions of family members. (43,44,45,46)The identification of the mutation allows you to extend the analysis to other family members and therefore identify, in a short time, those who are at risk of developing the disease and pass it on to their offspring. In cases where the molecular analysis does not identify a constitutive mutation in the gene it should emphasize the need for close monitoring. The geographical correlation allows also to compare health risk It allows to answer the question levels if there is a relationship between risk of death or birth defects as evidenced by numerous studies, there is an increased risk of cancer and malformations in the presence of high socioeconomic deprivation With increasing environmental pressure has been a steady trend in the health risk. The risk of congenital malformations, respectively increases, by 54%, and 83% significantly higher The correlation study also shows that the total mortality grows on average about 2%, in both sexes, from a more environmental pressure category to the next in higher pressure with a statistically significant trend showing an increase of excesses of congenital malformations with increasing hazard (47,48,49,50)) the clinical diagnosis therefore can be confirmed by molecular examination in 75% of patients. They are reported genotype-phenotype correlations in the field of clinical expression of patients with mutations in specific genes. Some genetic disorders can have partially overlapping clinical manifestations and can then ask for differential diagnosis in the diagnostic process underway. Many human hereditary characters are distributed in families proportionally different from those expected by Mendelian characters.(51) As the patient examined the interaction between genes and the interaction between genes and environment have changed the expression of a phenotype. (Heavy smoker, birth defects, presence of mutation, economic deprivation) Some human diseases have a polygenic inheritance and / or multifactorial. In these cases the hereditary transmission is not easily recognizable family tree. Many birth defects and many common adult diseases are inherited as discontinuous multifactorial traits. The susceptibility factors to a discontinuous multifactorial phenotype in the population are distributed according to a normal curve, which predicts that only a few subjects have a small number or, respectively, high susceptibility factors, while the majority has an average number of factors. The discontinuous phenotype occurs only when the number of susceptibility factors exceeds a threshold value empirically defined At the manifestation of the phenotype contribute genetic and environmental factors. The relatives, who share with people with a number of genetic susceptibility factors is proportional to the degree of consanguinity, have a relatively higher risk of developing the same phenotype. The assessment of the risk of recurrence is more complex than the illnesses.

Conclusions:-

Genetic testing can predict with great accuracy the future development of the health of an individual. They concern both the subjects in good health as those with symptoms of a disease, and may have profound repercussions for relatives of the person who is subjected to a test. Therefore, it is important to provide an adequate level of support for the patient and his family before proposing a genetic test and to communicate the results. With the progress of scientific knowledge on the complex genetic traits and their influence on the phenotype, genetic tests are undergoing an evolution that tends to shift their scope from traditional medicine to the molecular. They always cover the most complex traits rather simple, and their sphere of relevance will move from the family to the individual; for diagnostic and preventive services that will be in addition to those of the risk determination and the predictive; the methodology will shift from the analysis of chromosomes and genes to the genome; the genetic research clinical protocols will be oriented more clearly towards complex diseases. In the presence of defects it is necessary to provide genetic testing for the purpose of assessing the health of the individual. You can assume the major socio-ethical-legal implications for presymptomatic testing, the only genetic tests that can predict with certainty and in the future occurrence of a disease tests for clinical purposes provide information on the health status of subject. Those carried out for research purposes usually generate information that is not indicative of health status or genetic risks of the subject, but it is useful for the purposes of statistical or scientific research. Understanding the reasons for the functioning of our body with the understanding of the mechanisms of disease does not lead directly to a cure, but produces useful materials in studies focused on therapeutic perspectives. To understand well the role of the environment, complementary to that of the genes

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