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Effects of Polycystic Kidney

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ABSTRACT: ***Polycystic kidney disease (PKD) is an inherited disorder characterized by cystic expansion of the kidneys producing progressive kidney enlargement and renal insufficiency, in addition to various extra renal manifestations. In this case study out of 10 cadaver 1 cadaver had polycystic kidney which means the probability of occurrence is 10%. Early stage of pkd can be cured by oral medication whereas in acute cases surgery must be done to remove the cyst. Positive family history person has more probability of getting pkd.It can be diagnosed and treated by various methods for different age person***

Keywords: Polycystic kidney, cyst

1. Materials and Method

Usually dissection is done during mbbs and Bds anatomy practical classes. During desection out of 10 cadaver 1 cadaver had a polycystic kidney.it is taken under consideration.

Measurement is done with the help of measuring scale and measuring tape

2. Discussion

Causes

Polycystic kidney disease (PKD) is passed down through families (inherited), usually as an autosomal dominant trait. If one parent carries the gene, the children have a 50% chance of developing the disorder.

Autosomal dominant PKD occurs in both children and adults, but it is much more common in adults. Symptoms often do not appear until middle age. It affects nearly 1 in 1,000 Americans. The actual number may be more, because some people do not have symptoms.

An autosomal recessive form of PKD also exists. It appears in infancy or childhood. This form is much less common than autosomal dominant PKS, but it tends to be very serious and gets worse quickly. It can cause serious lung and liver disease, end-stage kidney disease, and it usually causes death in infancy or childhood.[1]

Persons with PKD have many clusters of cysts in the kidneys. What exactly triggers the cysts to form is unknown.

Etiology

Acquired cysts (solitary/simple) are commonplace in older persons. Multiple cysts may be seen in association with potassium deficiency, congenital disorders, metabolic diseases, and toxic renal injury. Acquired polycystic disease occurs in the setting of chronic, progressive renal scarring due to diabetes mellitus, chronic glomerulonephritis, or other renal disorders that lead to azotemia. Acquired cystic kidney disease (ACKD) is seen most commonly in patients undergoing dialysis (>75,000 cases) and is discovered incidentally in most instances. The nephrons that survive the underlying renal diseases are stimulated to grow and accumulate abnormal amounts of fluid. The disease is the consequence of the uremic environment, with replacement of renal function with an allograft leading to reversal of the cystic lesions in some cases. In contrast to patients with ADPKD and ARPKD, those with ACKD are more likely to have solitary or multicentric adenocarcinomas.[2]

3. Diagnosis

Screening for polycystic kidney disease in adults — An adult with a family history of polycystic kidney disease who has no symptoms may consider being screened for the disease. It is important to realize that, at present, there are no curative or preventative treatments for ADPKD. However, a number of novel treatments are being tested including increased fluid intake that may have a beneficial effect on the rate of cyst growth, and therefore kidney size. Importantly, being diagnosed with PKD could potentially affect a person's ability to obtain life insurance. As in children, monitoring for high blood pressure should be performed regularly in adults at risk of having ADPKD.[3]

Ultrasound — When screening is performed, an ultrasound of the kidneys is the most commonly used test. Imaging tests such as ultrasound can be used to screen for ADPKD. The following are ultrasound criteria used to diagnose ADPKD when it is unknown whether the affected parent has PKD1 or PKD2:

- In patients 15 to 39 years of age, at least three cysts (in one or two kidneys) must be seen with ultrasound.
- In patients aged 40 to 59, at least two cysts must be seen in each kidney with ultrasound.
- In patients over age 60, four or more cysts must be seen in each kidney with ultrasound.

In someone older than 40 years, a negative ultrasound usually means that the person does **not** have ADPKD.

Sometimes, the affected parent is known to have either PKD1 or PKD2. If the parent has PKD2, then a negative imaging study (i.e., no cysts in the kidneys) rules out the diagnosis if the person is older than 40 years. If the parent has PKD1, then a negative imaging study rules out the diagnosis if the person is older than 30 years.

As an example, assume a 35 year old man has a parent with ADPKD, but it is not known whether the parent has PKD1 or PKD2. He undergoes screening ultrasound, which is normal. The normal ultrasound means that he does not have PKD1, but he could still have PKD2 since PKD2 is a more mild disease that may produce cysts later in life. However, people with PKD2 have a lower risk of kidney failure compared with people who have PKD1 and typically develop kidney failure more than 20 years later than patients with PKD1. This news may be reassuring to some people.

Genetic testing — Genetic tests can also be done to screen for PKD1 or PKD2 mutations, although the use of genetic tests is limited by their cost and the test's inability to make a diagnosis in 15 percent of cases. Genetic tests may be used for:

- A young adult with a family history of ADPKD and a negative ultrasound who is a potential kidney donor
- A person whose ADPKD diagnosis is not certain based upon imaging tests
- A person younger than 30 years of age with a family history of ADPKD and a negative ultrasound who is planning to start a family[4]

Cyst formation in ADPKD may begin in the fetus. However, the disease does not usually cause symptoms in young children. Genetic testing can be done during pregnancy to determine if the baby is affected, although it is not recommended for several important reasons:

- The test may fail to identify ADPKD when it is present.
- Some people with gene mutations will never develop symptoms of ADPKD

4. Signs and Symptoms

Pain—in the abdomen, flank, or back—is the most common initial complaint, and it is almost universally present in patients with ADPKD. Dull aching and an uncomfortable sensation of heaviness may result from a large polycystic liver.

The pain can be caused by any of the following:

- Enlargement of one or more cysts
- Bleeding: May be confined inside the cyst or lead to gross hematuria with passage of clots or a per nephric hematoma
- UTI (e.g., acute pyelonephritis, infected cysts, perinephric abscess)
- Nephrolithiasis and renal colic
- Rarely, a coincidental hypernephrom

5. Prognosis

The prognosis in patients with ADPKD covers a wide spectrum. Renal failure has been reported in children; conversely, individuals with ADPKD may live a normal lifespan without knowing that they have the disease. More typically, however, ADPKD causes progressive renal dysfunction, resulting in grossly enlarged kidneys and kidney failure by the fourth to sixth decade of life. There is an inverse association between the size of polycystic kidneys and the level of glomerular filtration.[5,6]

An early study estimated that approximately 70% of patients with ADPKD would develop renal insufficiency if they survived to age 65 years. Currently, half of all patients with ADPKD require renal replacement therapy by age 60 years. Risk factors for progression include the following:

- *PKD1* genotype
- Large kidneys
- Several episodes of gross hematuria[7]
- Severe and frequent kidney infections
- Hypertension
- Multiple pregnancies
- Black racial background[8]
- Male sex

6. Treatments and Drug

Treating polycystic kidney disease involves dealing with the following signs, symptoms and complications:

- **High blood pressure.** Controlling high blood pressure may delay the progression of the disease and slow further kidney damage. Combining a low-sodium, low-fat diet that's moderate in protein and calorie content with not smoking, increasing exercise and reducing stress may help control high blood pressure.
  However, medications are usually needed to control high blood pressure. Medications called angiotensin-converting enzyme (ACE) inhibitors may be used to control high blood pressure in people with polycystic kidney disease, though more than one drug may be necessary for good blood pressure control.[12]
- **Pain.** Chronic pain, usually located in your back or your side, is a common symptom of polycystic kidney disease. Often, the pain is mild and you can control it with over-the-counter medications containing acetaminophen. For some people, however, the pain is more severe and constant. In rare cases, your doctor may recommend surgery to remove cysts if they're large enough to cause pressure and pain.[9]
- **Complications of cysts.** Rarely, when kidney cysts are causing severe pain or obstructing other organs or blood vessels, you may need to undergo surgery to drain the cysts.
- **Bladder or kidney infections.** Prompt treatment of infections with antibiotics is necessary to prevent kidney damage[10].
- **Blood in the urine.** You'll need to drink lots of fluids as soon as you notice blood in your urine, in order to dilute the urine. Dilution may help prevent obstructive clots from forming in your urinary tract. Bed rest also may help decrease the bleeding.
- **Kidney failure.** If your kidneys lose their ability to remove wastes and extra fluids from your blood, you'll eventually need either dialysis or a kidney transplant.
- **Liver cysts.** Nonsurgical management of liver cysts includes avoidance of hormone replacement therapy. Other options in rare cases include drainage of symptomatic cysts if they're not too numerous, partial removal of the liver or even liver transplantation.
- **Aneurysms.** If you have polycystic kidney disease and a family history of ruptured brain (intracranial) aneurysms, your doctor may recommend regular screening for intracranial aneurysms. If an aneurysm is discovered,

surgical clipping of the aneurysm to reduce the risk of bleeding may be an option, depending on its size. Nonsurgical treatment of small aneurysms may involve controlling high blood pressure and high blood cholesterol, as well as quitting smoking.[11]

7. Conclusion

- Out of 10 cadaver 1 cadaver had polycystic kidney
- Which signifies over 10% of the normal person have polycystic kidney
- It mainly occurs in old aged person
- Surgery is the most common treatment for the removal of cyst
- So all the doctors and surgeons must have the knowledge about this infection and treatment measures

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