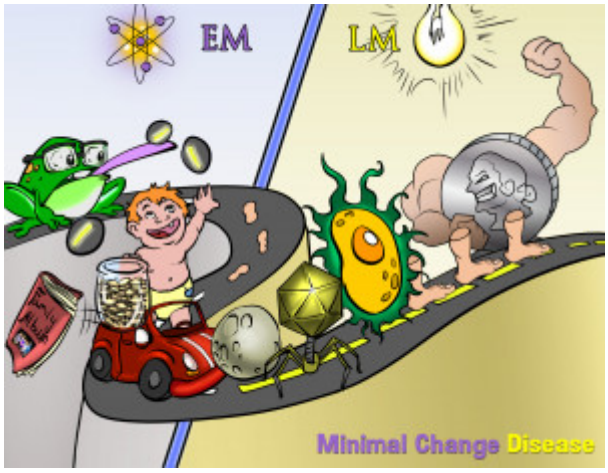
Minimal Change Disease

Minimal change disease is a relatively benign disorder that is the most common cause of nephrotic syndrome in children. This disease is characterized by diffuse effacement of foot processes called podocytes of visceral epithelial cells. This podocyte effacement is visible with examination by electron microscopy while the glomeruli appear virtually normal by light microscopy. In minimal change disease, the glomerular basement membrane loses its negative charge which makes it unable to repel the negatively charged albumin. Therefore, this form of nephrotic syndrome is characterized by selective loss of albumin with minimal loss of immunoglobulins. This disease is typically triggered by a recent infection or immune stimulus like a prophylactic immunization and has dramatic response to corticosteroid therapy.



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Pathophysiology

Nephrotic
Nerd-frog
Nephrotic syndrome is a group of symptoms including massive proteinuria defined as a daily loss of 3.5 gm or more of protein, hyperlipidemia, generalized edema, and hypoalbuminemia which results from renal pathology.

Most Common in Children
Child in diaper
Minimal change is the most common cause of nephrotic syndrome in children.

May be Triggered by Recent Infection or Immune Stimulus
Virus and Bacteria with Moon
This disease is typically triggered by a recent infection or immune stimulus, like a prophylactic immunization.

Diagnosis

On Electron Microscopy (EM) See Foot Process (Podocyte) Effacement
Left side marked with (EM) Electrons in an atom with lack of Foot Processes
This disease is characterized by diffuse effacement of foot processes, called podocytes of visceral epithelial cells. This podocyte effacement is visible with examination by electron microscopy, while the glomeruli appear virtually normal by light microscopy.

On Light Microscopy (LM) See Normal Glomeruli
Right-side marked with (LM) Light-bulb with Normal foot process structures
This disease is characterized by diffuse effacement of foot processes, called podocytes of visceral epithelial cells. This podocyte effacement is visible with examination by electron microscopy, while the glomeruli appear virtually normal by light microscopy.

Loss of Negative Charge
Negative-signs flying Off the road
In minimal change disease, the glomerular basement membrane loses its negative charge, which makes it unable to repel the negatively charged albumin. Therefore, this form of nephrotic syndrome is characterized by selective loss of albumin with minimal loss of immunoglobulins.

Selective Loss of Albumin
Family album being tossed out
In minimal change disease, the glomerular basement membrane loses its negative charge, which makes it unable to repel the negatively charged albumin. Therefore, this form of nephrotic syndrome is characterized by selective loss of albumin with minimal loss of immunoglobulins.

Treatment

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Responds to Corticosteroids

Quarter-on-steroids

Minimal change disease has dramatic response to corticosteroid therapy. Therefore, patients should be started on corticosteroids if minimal change is suspected, and if the response is inadequate, an alternative diagnosis should be suspected.

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