Spina Bifida Interventions

Spina bifida is a neural tube defect involving the spinal cord and bones of the spine (refer to the Picmonic on "Spina Bifida Assessment"). Types of spina bifida include spina bifida occulta, meningocele, and myelomeningocele. Identifying the type of spina bifida is critical for determining a treatment plan. However, most patients with spina bifida occulta do not require treatment. Interventions include placing the infant in prone position and covering the sac with a moist sterile dressing to minimize the risk of infection. Since increased intracranial pressure may result in hydrocephalus, measuring the infant's head circumference is important for early intervention. Special considerations include management of neurogenic bladder and bowel control. A series of operations may be performed to prevent spinal cord exposure and correct deformities. Spina bifida may also occur with other congenital malformations, such as scoliosis and clubfoot (talipes varus or valgus).



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Surgery
Surgeon
Infants born with spina bifida cystica require surgery to place the meninges and in severe cases the spinal cord and nerve roots back into the spinal column and close the opening in the vertebrae. Early surgical intervention is critical to help minimize the risk of infection related to exposed nerves or additional trauma (rupture of the sac). After surgery, the infant may be placed in a side-lying position to prevent irritation to the operative site on the back. In infants with hydrocephalus, a shunt may also be inserted to drain excess cerebrospinal fluid into the abdomen. Since spina bifida occulta is often asymptomatic with minimal complications, surgery is typically indicated for meningocele and myelomeningocele.

Prone Position
Prune Position
Infants with spina bifida should be placed in a prone position to prevent pressure on the lumbar sac. Since the sac is vulnerable to rupture leading to infection of the spinal cord, precautions should be implemented to prevent complications.

Cover Sac with Moist (Sterile) Dressing
Covering Sack with Moist Dressing
The lumbar sac on the infant's lower back is covered with a moist sterile dressing to minimize the risk of infection. Infants with myelomeningocele may develop meningitis, leading to brain injury and possibly death.

Measure Head Circumference
Measuring-tape around Head
Hydrocephalus is common among children with spina bifida. The child’s inability to drain fluid from the brain leads to fluid accumulation that may cause neurological problems or mental retardation. Measuring the child's head circumference is critical for early detection and intervention for hydrocephalus. To relieve pressure on the brain, a shunt may be surgically inserted to drain excess fluid into the abdomen.

Bulging Fontanel
Bulging Fountain
In infants, a bulging, tense fontanel is a sign of increased intracranial pressure (IICP). Increased ICP may develop into hydrocephalus and lead to neurological complications.

Considerations

Other Congenital Malformations Common
Present-from-birth Malformations
Other congenital malformations commonly occur in patients with spina bifida. Additional conditions may include hydrocephalus, scoliosis, hip dislocation, and clubfoot (talipes varus or valgus).

Bowel Control
Bowel-bowl Controller
Spina bifida may affect the ability to voluntarily relax the muscle sphincters that hold stool in the rectum. Children experiencing lack of bowel control have issues with fecal incontinence. An antegrade continence enema (ACE) procedure may be performed to help eliminate stool.

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Neurogenic Bladder

Sleeping-nerves on Bladder

Neurogenic bladder is a common issue in children with myelomeningocele. Since children with this condition are unable to voluntarily relax the muscle sphincters that hold urine in the bladder, they may require intermittent catheterization to periodically drain urine from the bladder. Teach the child and parent techniques for emptying the bladder to prevent overfilling that may lead to kidney injury.

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