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Mini Review

Principle and Practice of Post-natal Baby Check for General Practice: A Mini Review

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Abstract

A post-natal baby check is a comprehensive, head-to-toe clinical examination performed routinely within 72 hours of birth in the hospital and by a general practitioner (GP) in the community 6-8 weeks following delivery. It serves as an opportunity for continuity of care and coincides with the time of the baby's first set of vaccinations at eight weeks, which is often when babies are seen by a GP. The aim of this review is to describe the important elements of infant baby check and physical examination at 6-8 weeks in the context of evidence-based guidelines. Some abnormalities that are not visible at 72 hours after birth can become apparent at the 6-8-week post-natal baby check, and this is a valuable opportunity for further care through establishing an effective and efficient partnership with the baby and the mother. A satisfactory and skillful physical examination of an infant is reassuring and valued by the parents.

Keywords: Postnatal Care, Infant Care, Physical Examination, General Practice

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Introduction

A post-natal baby check is a comprehensive, head-to-toe clinical examination commonly performed within 72 hours of birth and by a general practitioner (GP) in the community 6-8 weeks following delivery. It serves as an opportunity for continuity of care and coincides with the time of the baby's first set of vaccinations at eight weeks, which is often when they are seen by a GP. Some abnormalities that are not visible at 72 hours after birth can become apparent at the 6-8-week post-natal baby check.

Furthermore, the baby check is essential for picking up on potential or missed abnormalities and for addressing any parental concerns. Consultations in a child's early years are a great opportunity to build an effective and efficient partnership and a relationship[1] that entails monitoring and promoting the child's developmental, emotional, and mental wellbeing. The developing brain can be significantly affected by the amount of quality care in early life, which can ultimately lead to lifelong consequences on the individual's pathway to sound health and satisfactory wellbeing.[2,3]

The UK National Screening Committee in 2008 set up national standards based on best practices for the examination of newborns and infants, termed the NHS newborn and infant physical examination (NIPE) screening programme, to ensure consistency and timeliness.[4] Screening should be performed within 72 hours of birth and then again at 6–8 weeks. The objective of NIPE screening is to recognize and refer all children with congenital abnormalities of the eyes, heart, hips, testes, abdomen, or extremities following delivery. Antenatal and postnatal risk factors are also meant to be assessed at each stage of the check.[4] The NIPE infant screening pathway is shown in Figure 1.

Effective postnatal care, as exemplified by NICE guidelines, covers the fundamental and satisfactory care that every healthy woman and healthy baby should be offered during the first six to eight weeks following birth.[5]

Realizing the potential of this consultation is dependent upon the GP's clinical and communication skills which can make or mar this opportunity for continuity of care.

Discussion

For a good clinical examination, it is essential to have major instruments on hand, such as disposable gloves, disposable tongue depressors, disposable paper tape-measures, a pen-torch, self-zeroing electronic baby scales, a stadiometer to estimate the length of the baby, pediatric-sized stethoscope, an ophthalmoscope to check light reflex, a pen-torch to visualize, and an appropriate UK-WHO growth chart. At each post-natal contact, assessments should be made on the breast-feeding history, fever, fast breathing, and jaundice in the first 24-hours of life. Families should be encouraged to obtain urgent care if any of these features are identified. This

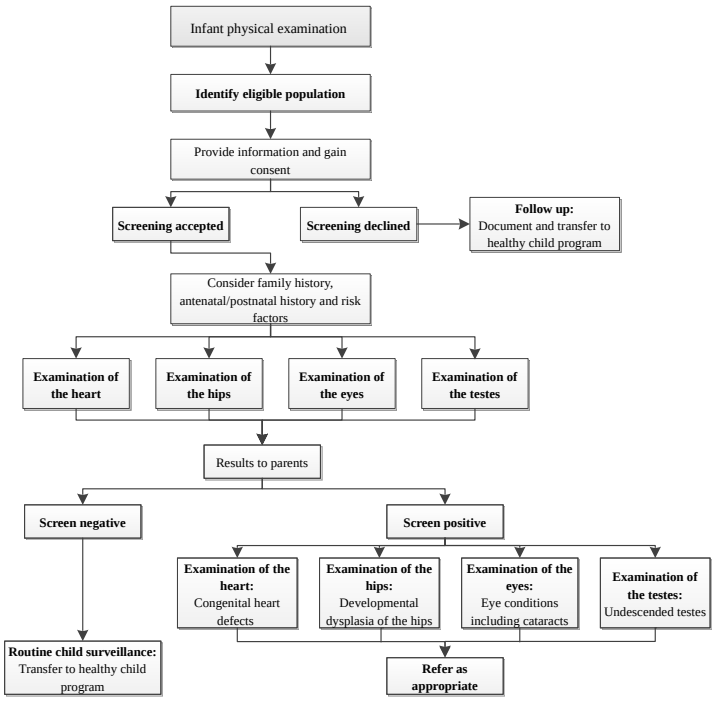

Figure 1. Framework for Newborn and Infant Examination.[4]

is a strong recommendation based on low quality evidence.[6] Following the birth of a baby, the parent should be offered two full newborn baby examinations with four screening components to identify congenital cataract, congenital heart disease, developmental dislocation of the hip, or undescended testes in males with the first examination taking place in the first 72 hours after birth.[7]

The Pattern

A pattern should be developed to help the GP be systematic and thorough. It should be easy to remember without being haphazard. Some prefer head-to-toe, and others prefer toe-to-head examination methods. The GP must develop pediatric social skills to be able to engage the baby even while it is crying and also to engage the parent. In addition, a pattern must be designed to progress from one stage of the examination to another. It is important to know when to stop when the baby is calm or peaceful. A standard guide is shown in Figure 1.

General Observation

A good examination begins with a general search for normal or dysmorphic features. On meticulous observation, significant features can become apparent prior to clinical examination, such as the color of the baby (jaundice), trisomy 21 features, fixed gaze or side-to-side movement, respiratory distress, or increased work in breathing.

Skin

A variety of skin abnormalities may be apparent following a detailed examination of the newborn baby's skin, including lack of hydration, rashes (milla, pigmented lesion, naevi, Mongolian blue spots [also called dermal melanocutosis], café au lait spots, birth marks , bruises, petechial rash, and traumatic lesions from instrumental deliveries), cutis aplasia, vascular lesions (hemangioma, port wine stains, simple naevus); skin color (pink, cyanosis, pallor, jaundice, or a plethora); acrocyanosis, cutis marmorata, or postular melanosis. However, even though these findings are usually benign, it is important to properly visualize these lesions in order to distinguish between the characteristics and to reassure parents appropriately. Some may resolve over time.[8-10]

Head and Neck

The shape of the head can be an indicator of potential abnormalities. As the brain expands, the shape of the head may be characterized by marked asymmetry, which could suggest possible craniosyntosis. However, this is rarely encountered. Babies commonly develop flat occiput as a result of lying on their back most of the time in utero. This is termed flat head syndrome and has two types. The first is plagiocephaly, which is the unilateral flattening of the head which causes the head to look asymmetrical, and the forehead and face may bulge on that side occasionally. The second type is brachycephalic when the back of the head becomes flattened causing the head to widen.[11] In most cases, these conditions are asymptomatic. An open anterior fontanelle allows a brain ultrasound to exclude hydrocephalus when raised head circumference velocity is detected.[12] The head circumference growth velocity must be interpreted with caution, because some babies are born large while others are smaller than their genetic potential. Also, signs of trauma associated with instrumental delivery like chignon from vacuum extraction or superficial laceration from forceps delivery should be sought. In addition, the baby should be checked for swelling in the neck, webbing, traumatic lesions from forceps delivery, or a fractured clavicle.

Eyes

Newborn eye examinations should assess the color of the eye, the size and shape of the pupil, the spacing between the eyes, conjunctival sclera appearance, red reflex, eye discharge, and the presence of colobomata (defect in the structure of the eye, primarily the iris). Abnormal morphology, nystagmus, and strabismus are possibilities, and babies should be meticulously assessed to exclude these ophthalmological abnormalities. Checking for red reflexes and opacities is important in excluding possible retinoblastoma or congenital cataracts. A normal red reflex results in symmetry in both eyes without opacities, white spots, or dark spots.[13] These spots can vary from one ethnic group to another because of the presence of ocular pigmentation.[14,15] Parents should be asked about their family histories of congenital or hereditary cataracts. Genetic disorders are often associated with hypertelorism (increased space between the eyes) and hypotelorism (decreased space between the eyes) when present.[16] An abnormal red reflex will require prompt referral to an ophthalmologist.[15]

Nose

The nose should be examined for patency and nasal flaring. One or both sides of the nasal airways can be occluded or narrow as in choanal atresia; the infant will have bilateral choanal atresia with cyanosis which is relieved by crying. The patency of the nostrils can be checked with a small catheter passed through each nostril. It is essential that the nasal septum be check for symmetry or asymmetry that is not resolved with depression of the tip of the nose, indicating it is probably dislocated and may need further evaluation by an ear, nose, and throat specialist.[17,18]

Mouth

The maxilla and mandible must fit well together and open in equal angles. Pierre Robin syndrome presents with a small mandible (micrognathia).[19] The baby should be checked for cleft palate A bifid uvula might herald a submucous cleft, and a midline cleft is an indication for further investigation to exclude midline brain defect or other abnormalities.[20] The infant should also be inspected for possible tongue tie (ankyloglossia). To do this, the GP can run his/her finger under the tongue (termed the "finger swipe tongue tie test"). Tongue tie can be either anterior or posterior in presentation. Some infants may present with breast feeding and latching problems.[21] Sometimes oral thrush may be present evidenced by white material stuck to the cheek mucosa.

Abdomen

A general abdominal examination may reveal a scaphoid abdomen consistent with congenital diaphragmatic hernia or distended abdomen. It is important that the condition of the umbilical cord be checked for signs of bleeding or infection, and it should contain one vein and two arteries. The abdomen should be auscultated for bowel sounds and palpated for any organ enlargement. It is normal to occasionally feel the tip of the spleen. A palpable and sharp liver edge three to four finger-widths below the right costal margin may be present in most babies.

Hip Examination

It is important that the GP describe to the parent what s/he is about to do and why. Approximately 2 in every 1000 babies have a hip abnormality requiring treatment, and delay in diagnosis can lead to significant impairment, pain, and impaired mobility.[4] Having taken a brief and focused history to exclude risk factors for possible developmental hip dysplasia, the doctor should then continue with the Ortolani and Barlow maneuver of the hip with gentle and simultaneous abduction of both hips. A palpable clunk (if the head of the femur is dislocated, it will slip over the acetabular edge and acetabulum) is positive for possible hip dysplasia. The Ortolani test is used to assess a dislocated hip, while the Barlow test screens for dislocatable hip. An ultrasound of the hips, usually performed before 6 months of age, is recommended for suspected cases of developmental dysplasia. The head of the femur is not calcified, so an X-ray is inappropriate. Risk factors for the development of congenital hip dysplasia are female gender, family history of hip dysplasia in a first degree relative, breech position at or after 36 weeks of pregnancy irrespective of presentation or mode of delivery, and intrauterine problems like reduced volume evident in the first pregnancy, oligohydramnios, and multifetal pregnancy. Newborns with a family history of developmental hip dysplasia (risk of 44 per 1000 in girls and 9.4 per 1000 in boys) or boys born in a breech position (risk of 26 per 1000) should receive imaging (ultrasonography at 6 weeks of age or plain radiography at four months of age).[22]

Cardiac and Respiratory Examination

Newborns should be checked for symmetry of chest movement. Asymmetrical chest movement may be present in pneumothorax, diaphragmatic hernia, or cystic malformation of the lung. In addition, the infant should be checked for chest wall abnormalities like pectus excavatum, pectus carinatum, or prominent xiphoid. Supernumerary nipple can be present along the milk line (axilla to pubic region), but no treatment is required.[23] Widely-spaced nipples may be a feature of Turner syndrome.[24]

The skin color of a newborn should be checked, because a healthy baby is pink in color; otherwise, it is a medical emergency. Central cyanosis is another medical emergency, so the GP should look out for signs of respiratory distress, including subcoastal and intercostal resection, tracheal tugging, and increased work to breathe. The liver should be palpated to check for enlargement which can occur in congestive cardiac failure. Congestive cardiac failure at this age may present with large ventriculoseptal defect or patent ductus arteriosus. The presence of palpable femoral pulses excludes the possibility of coarctation of the aorta. It is essential that care be taken in interpreting murmur in the first twelve months of life as "innocent." It is advised that the patient be referred to a pediatrician for further evaluation.

Neurological Examination

The nervous system is derived from the ectoderm; hence, it is essential that attention be paid to the skin outgrowth like in the encephalocele and cutaneous manifestation like

pot-wine stain. The sacral dimple and sinuses may herald underlying neurologic dysfunction. Head circumference is a measurement of intracranial volume. A normal head circumference is 35 ± 2 cm. Furthermore, the palpate anterior fontanelle size should be <3 cm x 3 cm.

The GP should observe for spontaneous movement of all four limbs, assess the tone which may be impaired in cerebral palsy. Primitive reflexes including the Moro reflex which is best evaluated by dropping the head in relation to the body. This entails the response to sudden loss of support with the opening of the bilateral hand, the abduction and extension of the upper extremity, followed by anterior flexion of the upper extremities and subsequently a loud cry.

Genito-urinary System

In males, the GP should check for penis size (>1 cm) and the position of the urethral meatus. and look for hypospadias. Furthermore, the GP should inspect for inguinal hernia, chordee, and color of the scrotum. The GP should also palpate the scrotum for the presence of two testes, bilateral undescended testes, or a micropenis may need further investigation for ambiguous genitalia. Also, the infant should be checked for the presence of hydrocele, which is often resolved within the first one to two years of life.[25,26] Females should be checked for vaginal discharge and the parents should be reassured, because a white discharge or small amount of blood appears due to maternal estrogen withdrawal. The patency of the hymen should be checked by separating the labia minora, and the GP should examine female babies for features of ambiguous genitalia, like clitoromegaly and fused labia.

Rectum

The rectum should be examined for normal placement and patency of the anus. A sacral dimple may be visible with 2.5 cm of the anal verge and must be less than 0.5 cm in diameter without any hairy patches or hemangiomas. If it is not, further investigation for spinal dysraphism may be required.[27] An imperforate anus may be an isolated finding or a feature of a syndrome. Urgent referral is advised in these babies.

Extremities

Extremities must be examined for possible syndactyly, clinodactyly (curvature of the fifth digit), or polydactyly (extra digit) which can arise from the lateral surface of a digit. The palmar creases should be examined. A single palmar crease may be a feature of trisomy 21 syndrome, but can occur alone in 3%-10% of people.[28] In addition, the GP should check for the position and configuration of the feet, inspecting for fixed or positional talipes and overlapping toes.

Conclusions

A post-natal baby check is an essential opportunity for continuity at 6-8 weeks by establishing an effective and efficient partnership with the baby and mother at the visit. A satisfactory and skillful physical examination of an infant is reassuring and valued by the parents, especially when the outcome is unremarkable.

Conflict of Interest Disclosures

None to be declared.

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