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Achieving MDG-4:
Strategies & Action

PEDICON

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for Practitioner

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Common Neonatal Problems in Office Practice

2

Shikhar Jain, Jenisha Jain

Introduction

Common neonatal problems are different from common childhood problems in several ways. Many of these are physiological and developmental variations which appear as a problem to an ignorant. Many are simple problems with simple solutions. Their unnecessary investigation or treatment is not required and may actually be harmful. On the other hand, symptoms and signs, which appear minor or insignificant, may actually be manifestation of a much serious disease internally. Picking up such cases early is important for instituting early treatment and prevent morbidity and mortality. Further, inappropriately managed cases may develop lifelong disability from neurological damage, especially in a newborn. A pediatrician, therefore, needs to be knowledgeable as well as experienced to pick up and decide what is what. Investigations shall be undertaken to clarify issues, if in doubt.

Anatomical Variations and Minor Manifestations

"Caput succedaneum" is a vaguely demarcated pitting edema seen at birth over the presenting parts of scalp. It is external to periosteum and is not limited by sutures. It subsides within few hours to days, so does "molding of head", which deforms shape of head temporarily due to birth canal pressures in vaginal births. "Cephalhematoma" or subperiosteal collection of blood presents several hours after birth as fluctuant swelling in parieto-occipital region which is limited by skull sutures. This blood absorbs over few weeks, rarely some large hematomas may calcify. Parents only need to be reassured, message is unnecessary and incision contraindicated. Large hematomas may be associated with skull bone fractures, severe anemia and excessive jaundice. Depressed fracture, abscess formation, osteomyelitis are rare and may need surgical intervention. Small "subconjuctival hemorrhages" resolve by themselves.

"Umbilical hernia", generally small and occasionally large, tends to increase for few weeks to months before it starts reducing and disappears without any management. It rarely needs surgical correction like when it increases in size after 1 year of age or fails to disappear by 4 years of age. Minor "hydrocele" can be managed conservatively; torsion needs to be ruled out if associated with pain or redness. "Retractile testes" need to be differentiated from undescended testis. So-called "bowing of legs" and mild incurving of feet are normal in newborns. Moderate incurving needs only reverse pressure exercises for correction. Severe incurving

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or foot deformities (telepes) need more energetic orthopedic interventions.

"Mongolian spots" (blue discoloration of skin in rather large areas, especially over back and gluteal region) and "small hemangiomas" do not need any treatment. "Milia" (white minute eruptions over nose tip and face), "Epstein pearls" (midline palatal small white patch/cyst), "sucking callosities, mucosal vaginal tags", etc. are considered inconsequential. Tight prepuce, softness at fontanels, palpable sutures, "tongue tie", etc. are normally seen in babies.

Developmental Variations

"Physiological jaundice", due to delayed maturation of hepatic enzymes, is seen in 60–70% of babies. It appears at 2–3 days after birth and subsides over 7–10 days. It is a classical example of normal lags in physiological development of body functions in neonates. However, parents invariably inquire about it and opinion is sought. Most of them only need reassurance. However, observation is in order as a precaution against excessive rise, especially in borderline term and poorly feeding babies. Jaundice seen on lower abdomen and thighs is about 15 mg/dL and that seen on legs and soles and palms is over 18–20 mg/dL, is a rough but useful guide. A jaundice that appears before 24 hours of age is over 15 mg and lasts longer than 10–15 days, should not be passed as physiological and should be investigated. One should be more cautious if there is blood group incompatibility, glucose-6-phosphate dehydrogenase (G6PD) deficiency or if baby is premature and low birth weight (LBW).

"Mastitis neonatorum", a misnomer engorgement of breast tissue due to effect of maternal hormones is another dramatic manifestation seen in some babies of both sexes which subsides over few weeks. This does not need any treatment and massage or attempts to extrude milk should be strongly discouraged. "Vaginal bleeding", a maternal hormone withdrawal phenomenon seen occasionally in female babies, only needs assurance. "Delayed development" of perathyroid funtion, immunity and similar "molecular functions" can rarely cause related manifestations.

Normal Bodily Functions

Frequent motions, regurgitation, being awake during night and crying, "gases" etc. are normal for babies but a frequent cause of worry for mothers, and only need sympathetic explanations. Very frequent (sometimes 20–25/day) semiliquid small amount stooling, erroneously termed "breast milk diarrhea" is also seen in some babies and requires absolutely no treatment. Adequate weight gain and frequent urination is a good surety for enough breast milk or against "breast milk intolerance". It also rules out any other serious sickness in baby in general. Normal newborn baby passes urine at least 5–6 times a day, most well-fed babies pass urine 10–20 times. "Infrequent stooling" is uncommon but some normal babies pass motion once a day or once in a few days. No treatment is required.

"Regurgitation" is frequent and is normal if associated with adequate weight gain. Reassurance, semiupright position after feeding and burping helps. Some babies cry before passing urine or motion normally. Occasional excessive "cry" especially in evening for no obvious reason, erroneously termed "evening colic", can be managed with some sedation (SOS). "Sleep" pattern is highly variable. So is crying. Some cries are cranky, others quiet. Some babies make body movements and noises while asleep and are wrongly interpreted by parents as lack of sleep, "gases" or evidence of some distress in baby. "Jitteriness" or tremulousness and "startling" are sometimes confused with abnormal movements or convulsions. Video recording of movements and video electroencephalography/electroencephalogram (EEG) are sometimes necessary in

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doubtful abnormal movements or subtle convulsions.

Minor Problems

"Erythema toxicum", a serious sounding term, is simply a reddish flat rash over face and trunk, sometimes with white pinpoint papules. It appears on 2nd or 3rd day and disappears spontaneously in next 2–3 days. Etiology is not known and it does not need therapy. "Miliaria", an eruption resulting from obstructed sweat glands, is seen in intertriginous areas, face, scalp, as superficial thin-walled vesicles with or without erythema. "Pustules" need only aseptic lotion application like that of chlorhexidine. Other flat rashes appearing later need advice on preventing contact dermatitis, harsh massages, overclothing, etc. Neonatal acne, seborrhic dermatitis, pustular melanosis and acropustulosis may need local corticosteroid application. "Perineal rash" is generally controlled by frequent nappy change, airing the area by keeping it open for several hours, and emollients like coconut oil application.

Conjunctivitis with sticky, red eyes and purulent discharge should be treated with frequent antibiotic drops. Plain watering suggests "nasolacrimal duct block" which only needs nasolabial pressure/massage 5–6 times a day for a few weeks. Syringing is recommended if it persists beyond 3 months. "Thrush" is treated with local nystatin application. Purulent cord discharge can also be treated with local antibiotic. "Umbilical" wetness due to "granuloma", a small pinkish nodule at base of umbilicus, shall be managed by common salt sprinkling once. This dries and shrinks the nodule and effectively cures the problem. Some use silver nitrate cautery. "Nose block" noises, sometimes referred to as "cold" by mothers, should be managed by nasal cleaning or saline nasal drops.

"Fever" which may be due to inadequate feeding, especially in primiparous mothers, is termed as dehydration fever and is easily managed by advising on feeding. Excessive clothing and hot climate are other common causes which should be controlled. Antibiotics should be avoided in the absence of any other sign of sepsis. Excessive jaundice, hypoglycemia and poor weight gain or loss may be seen due to "inadequate feeding", especially in preterm and LBW babies, if mothers are not adequately counseled. "Breast milk jaundice", a variety of deeper than usual and prolonged unconjugated hyperbilirubinemia due to inhibitory substances in breast milk in some mothers also, only needs to be watched. Stopping breastfeeding for two days, phototherapy and rarely exchange transfusion is required for excessive levels in first month of life.

"Injuries" during birth process like brachial plexus injury (Erb's palsy), clavicular fracture (manifested by lump over clavicle and asymmetrical Moro's reflex) are occasionally seen. The treatment is mostly conservative posturing and later physiotherapy. More deeper and serious injuries can occur and should be looked for.

Manifestations of Serious Problems

Manifestations of serious problems in newborns may be subtle and need experience and knowledge to pick up. Not taking feeds, dullness, being off-color, irregular shallow respiration may herald onset of serious problems like "sepsis, hypoglycemia or inborn errors of metabolism". Inadequate urinary stream, wide open fontanel, conjugated jaundice, constipation, poor cry, abnormal odors, depigmented hair, organomegaly, subtle convulsions, all need proper assessment. Each manifestation has several differential diagnoses, and accordingly, different scheme of investigation will be required based on composite clinical picture. Persistent vomiting, abdominal distention, skin manifestations on back or head, persistent murmurs, tachypnea, getting

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tired while feeding, choking, etc. should alert us towards serious internal "malformations" of the concerned organ system.

"Hair and whorls abnormality" and low "hairline" may be variations or part of certain syndromes. "Abnormal facies", eye slants, prominent ear and short neck may be syndromic manifestations. Periauricular tags, facial capillary hemangiomas, inconsequential by themselves, should invite search for renal or brain malformations. Similarly, polydactyly, syndactyly, abnormal palmar creases, bifid or broad thumbs and other "limb abnormalities" should not be taken lightly.

In "subgaleal hemorrhage", more blood may be lost as it occurs in loose connective tissue between skull periosteum and galea aponeurotica. It presents with pallor, hypotonia, swelling, periorbital edema, ecchymosis, and may progress to shock, disseminated intravascular coagulation (DIC), multiple organ dysfunction syndrome (MODS) and death.

"Inguinal hernia" needs to be operated early as it tends to strangulate. Inguinal hernia in a female should alert the clinician to look for evidences of intersex. Undescended testis at 1 year of age should be brought down to scrotum surgically. Bilateral "cryptorchidism with hypospadias" needs investigations as ambiguous sex. "Micropenis" (less than 1 cm in length) and "penile or clitorial hypertrophy" also need further workup.

General Examination and Advice

Very commonly parents attend a pediatrician's office for reassurance and getting advice on "general care" like feeding, clothing, bathing, use of oil/powder, immunization, etc. Such queries should be addressed properly and scientifically. Semi-demand feeding schedules, soft nonirritant clothing and less costly simple baby products should be advised. Attention to the complaints of inadequate milk, breast engorgement and pain should be sympathetically addressed for the success of breastfeeding. Exclusive breastfeeding for six months should be enforced at all visits. Dry open cord care is the rule currently. Teats/soothers and *kajal* in eyes are to be strongly discouraged while nonharmful "cultural practices" need not be interfered with.

Bacille Calmette-Guerin (BCG), polio and hepatitis B immunizations are generally given at birth. These are advised in stable preterm babies of all weights also before discharge or thereafter, except Hepatitis B, which is advised to be given after the baby has achieved 2 kg weight.

"Adequate and minute examination" should be done to detect problems like craniosynostosis, abnormal head shape, midline defect in front and back, spinal bifida occulta (evidenced by nevus, swelling and tuft of hair over spine), dermal sinus, etc. Sacrococcygeal pits are harmless and should not be confused with sinus. All hips should be examined for stability and "developmental dysplasia" by Barlow and Ortolini tests. Asymmetric thigh folds give a clue. If physical examination is positive, orthopedic opinion should be sought. If it is inconclusive, follow-up after 2 weeks is recommended. If it is negative but high risk factors like positive family history, breach delivery and female sex are present, further investigations like X-ray, sonography or other imaging may be planned in due course in consultation with an orthopedician. Soft grade 1–2/6 systolic "functional murmurs" need to be watched for disappearance. Significant (pansystolic, harsh, loud grade 3/6 or above) murmurs need further evaluation. These may be associated with clicks, loud second heart sound and abnormal pulses.

Careful examination can pick up several disorders; many of these are not uncommon. The incidence of congenital heart disease is 6–8 per 1,000 of developmental dysplasia 0.8, of telepes 1.5, of Down's syndrome 1.2 and of spina bifida 0.5 per 1,000 live births. "Eyes" should be examined for red or white reflex, hazy cornea, coloboma and other abnormalities. Redundant skin over posterior neck, webbed neck, pedal

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edema, etc. should arouse suspicion of a genetic disorder like Turner's syndrome. Cleft palate should be looked for. Submucosal cleft can be missed. It should be suspected in bifid uvula and linear depression in posterior palate. Abnormal "hyperpigmentation" of areola, genitals, knuckles, etc. may occur in adrenal insufficiency.

All "visits" should be used to assess growth as well as development. Deviations should be noted and followed. Appropriate charting helps in picking up deviations early and also helps follow-up by different caregivers if parents happen to shift to other places.

Universal "neonatal metabolic screening" is likely to get foothold in our country in the coming times. This may be for different disorders, and several packages from 2 to 30 disorders are already available in state pilot projects and from private laboratories. Screening for hypothyroidism, phenylketonuria and galactosemia are most commonly employed, followed by other aminoacidopathies, G6PD deficiency, fatty acid oxidation disorders, congenital adrenal hyperplasia, organic acedemias, etc.

Nursery Graduates

These are becoming an important part of office practice. Preterm, LBW, asphyxiated and sick babies, who have been admitted in special or intensive neonatal care units, pose special challenges during office visits. Their "growth" (weight, height and head circumference) needs special monitoring and addressing. Follow-up for retinopathy of prematurity (ROP), hearing screening and "development" as per schedule should be ensured. They are prone to respiratory infections and other "morbidities", and readmissions are common. They need more frequent visits for discussing preventive and promotive aspects of care, like temperature maintenance, infection prevention, feeding advice reinforcement, and so on. Head circumference is important in cases of neonatal meningitis, birth asphyxia or intraventricular hemorrhage for timely diagnosis of microcephaly and hydrocephalus.

Box 1 Points that shall be covered during an office visit

- General examination and baby care advice
- Management of minor problems
- Identification of serious problems and referral for inpatient care
- Immunization and other preventive and promotive healthcare
- Follow-up services
- Miscellaneous—screening, collateral advices

Depending on gestational age, type and intensity of sickness and condition at discharge, twice a week or weekly visits may be planned initially for checking weight gain and general well-being. If weight gain is progressing satisfactorily and the baby is otherwise well, then weekly or fortnightly and later monthly visits are planned.

First screening for ROP is generally done at 34 weeks of gestation or within 15–30 days after birth, depending on gestation, birth weight and gravity of problems during admission. Subsequent visits are planned by ophthalmologist as per findings of fundus examination and vascularization of retina. Hearing screening [by behavioral, otoacoustic emission (OAE) or brainstem evoked response audiometry (BERA) techniques] at discharge and repeated within three months is advised. Developmentally supportive care and early stimulation techniques are advised for helping the neurodevelopment of "at-risk babies".

Summary

Office practice/outpatient services in the government as well as private sector is/are an important avenue(s) visited by parents. These provide immense potential for preventive and promotive care, management of common problems and also general and specific follow-up services (Box 1). As we take

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steps to achieve millennium development goals (MDG) 4, the importance of this sector is increasingly recognized as part of a comprehensive strategy.

Suggested Reading

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