prevents blindness if the mother should have an undetected gonorrheal infection (56, 65, 84).

Hearing

Hearing is developed in utero as demonstrated by sensitivity to sound in the fetus at about 26 to 28 weeks of gestation. This occurs when the fetus is exposed to internal sounds of the mother’s body, such as the heartbeat and abdominal rumbles (heard at 5 months), and external sounds, such as voices, music, and a cymbal clap (heard at 7 months). Hearing is blurred the first few days of life because fluid is retained in the middle ear, but hearing loss can be tested as early as the first day. The sound must be louder to be heard by the newborn than by an adult. The neonate cannot hear whispers but can respond to voice pitch changes. Infants hear high pitches better than lower pitches. A low pitch quiets and decreases motor activity and crying, whereas a high pitch increases alertness. An infant turns the head toward the source of a sound and responds best to the mother’s voice, to sounds directly in front of his or her face, and to sounds experienced during gestation. Newborns startle to sudden or loud sounds, are soothed and may fall asleep upon listening to rhythmic sounds, quiet upon hearing their mother’s voice, and momentarily cease activity when sound is presented at a conversational level (14, 15, 38, 56). A baby often sleeps better with background songs or a tape recording of the mother’s heartbeat. The newborn prefers the sound of the human voice to other sounds in the environment. The neonate differentiates between the voice of the mother and another female. A 1-month-old can discriminate between the syllables “ba” and “pa.” Differentiation of sounds and perception of their source takes time to develop, but there are startle reactions. The baby withdraws from loud noise (14, 15, 38, 56, 87, 91).

The presence of congenital hearing loss (born deaf) is more common than ordinarily understood. It is believed that newborn hearing loss is approximately 1 to 2 per 1,000 live births. Box 9-3, Checklist to Detect Presence of Hearing in Infancy, is a guide for parents and health care professionals to check for hearing ability in the neonate and infant. The Joint Committee on Infant Hearing, American Academy of Pediatrics, recommends that all infants be screened for hearing problems before discharge from the birthing hospital (4).

Taste and Smell

The newborn’s senses of taste and smell develop in utero. These senses are more fully developed than their senses of hearing and vision. The infant reacts to strong odors by facial expressions, turning the head away, and using other avoidant behaviors. A newborn turns the head toward a milk source, whether breast or bottle. Breastfed infants are able to differentiate the odor of their mother’s milk from that of another mother. Infants can discriminate the smell of their mother’s body from other bodies or objects and can sense the odors that adults can sense. Newborns are sensitive to sweet, sour, and bitter tastes, but sensitivity to salty tastes develops over the first 4 to 6 months of age. Breathing rhythm is altered in response to fragrance, showing some ability to smell (15, 38, 56, 65).

SPECIAL CONSIDERATIONS IN PHYSICAL ASSESSMENT OF THE NEONATE

Neonates differ in their appearance, size, and response. Females are more developmentally advanced than males, and African Americans are more developmentally advanced than Caucasians. The most accurate assessment is made by comparing the neonate against norms for the same gender and race (6, 17, 47, 53, 56).

When a newborn is examined, the primary concerns are neurologic status, congenital deformities, and metabolic disturbances. History of hereditary diseases and the pregnancy and delivery information are essential. Reflex status indicates neurologic development and some congenital deformities. The following are particular aspects to check when physically assessing the neonate (47, 56).

A small chin, called micrognathia, means that the neonate may experience breathing difficulties, because the tongue can fall back and obstruct the nasopharynx.

Ear position is important because there is a strong association between low-set ears and numerous syndromes, renal malformation, internal organ abnormalities, or a chromosomal anomaly such as Down syndrome. The top of the ear should be in alignment with the inner and outer canthi of the eyes. The Eustachian tube is shorter and wider than in the adult. Occasionally, small skin tags may be seen in front of the ears (47, 56, 65, 84).