

Should Urologists Ask Their Adult Patients If They Were Premature?

With the remarkable advances in the field of neonatology, premature infants who once had little chance of survival are now entering adulthood. Approximately 12% of babies born in the US are preterm roughly translating into more than half a million births a year. The first wave of extremely low birth weight infants who benefited from medical advances such as the use of surfactant are entering adulthood and are being identified at increased risk of developing chronic health problems. Most of the chronic medical problems are pulmonary/asthma, cardiovascular, hypertension and problems such as a metabolic syndrome and type 2 diabetes. These infants are more likely than babies of normal birthweight to suffer lifelong functional and educational limitations due to cerebral palsy, hearing and vision impairment. Concerning urologic conditions that are now recognized as once premature infants become adults are testis cancer, chronic renal insufficiency and issues with sexual functioning.

While accounting for only about 1% of all cancers diagnosed in males, testis cancer is the most common solid tumor in men 25-35 years of age. Testicular cancer is one of the most treatable cancers and is an outstanding model for multi-modality treatment with 5-year survival rates exceeding 95% for all stages of disease. This outstanding improvement in the management of this malignancy is tempered by current epidemiological trends. The incidence of testicular cancer has nearly doubled over the last 4 decades with white males much more likely to be affected than African-Americans. The annual percentage increase in testicular cancer from 1992-2009 is a concerning 1.1%/year.¹

Some risk factors for this disease have been clearly identified. Cryptorchidism is the most widely implicated, with the risk of developing a testicular neoplasm increasing 3-9 fold with an undescended testicle. There may also be genetic factors involved with an increased risk in an individual if a father or brother has testicular cancer. Environmental factors have been studied that may indirectly influence the development of testis cancer through alterations in the hormonal milieu of the developing fetal testis. An inverse association between birth weight and testicular cancer has also been demonstrated.² Adult males who weighed less than 2,500 g at birth have a higher risk of developing testis cancer later in life than those born with a normal birth weight (2,500–4,000 g). While it is easy to assume the relation between low birth weight and cancer be explained by the increased incidence of cryptorchidism in low birth weight neonates, extreme preterm birth was associated with an increased risk of testicular cancer (hazard ratio 3.95) after adjusting for other perinatal factors, family history of testicular cancer, and cryptorchidism.³

Hypertension and chronic kidney disease are increased in adults born prematurely. During the third trimester of pregnancy, an active period of renal development, more than 60% of nephrons are formed. Interruption of this process through premature delivery results in lower nephron endowment that persists throughout life. Renal insufficiency is further complicated by the use of lifesaving but nephrotoxic drugs in the neonatal ICU. The reduced and damaged nephron count is associated with hypertension and progressive renal disease later in life.

Adding to the adult urology aspects of prematurity, adults born preterm or with low birthweight are less likely to experience a romantic partnership, sexual intercourse, or to become parents compared to their full-term peers.⁴ They were more than twice as likely to never have sex.

The survival statistics for low birth weight infants has been improving steadily worldwide for over two decades. This trend will continue due to improved technology and care in maternal and neonatal units and will allow extremely premature infants to survive, possibly contributing to the observed increases in diseases such as testicular cancer.

Pediatricians and pediatric urologists are well versed in determining the details of the birth history. With many more neonatal ICU graduates entering adulthood, urologists and other adult care providers may also need to inquire about birth history as a risk factor when evaluating testicular malignancy, renal insufficiency and issues surrounding sexual functioning.

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