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Born small for gestational age: Endocrine concerns

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Small for Gestational Age (SGA) babies are those which are born with birth weight less than 10th percentile or 2 standard deviations below the mean weight at birth. The causes of SGA could be placental, fetal or maternal. The burden of SGA birth cohort is almost 30% of all live births with a global average of 32.4 million babies annually in 2010. SGA babies face a higher risk of immediate neonatal morbidity and mortality and long term concerns of which growth, endocrine and metabolic complications are significant. A disruption of adequate supply of glucose and amino acids to the fetal brain results in alterations in growth hormone and insulin like growth factors, as seen in SGA babies. The earliest endocrine issue discernible is growth failure seen as failure of catch up of weight and/or height by two years of age. This may be seen in 10-15% of babies born SGA who do not show a catch-up in growth in first six months or upto two years of age. Such babies may benefit with supplemental growth hormone therapy. The mean thyroxine concentrations are also found to be low in SGA babies (lower in preterm SGA than term SGA babies) which directly correlate with fetal hypoxemia. However, there is insufficient evidence for routine thyroxine supplementation in preterm or SGA babies. The other endocrine manifestations that may manifest later in life include premature adrenarche, obesity, metabolic syndrome and osteoporosis. Fetal undernutrition and poor glucose-insulin homeostasis during fetal period produce a state of insulin resistance. This acts as a risk factor for premature adrenarche, polycystic ovarian disease, diabetes mellitus and metabolic syndrome. Few authors have also found increased levels dehydro epiandrosterone sulfate in prepubertal SGA children which is linked with early adrenarche. Other inflammatory markers which have been associated with reproductive dysfunction in SGA children are low adiponectin levels, high circulating levels of C-reactive protein, IL-6 and TNF-α. The role of these markers is better understood in studies on SGA girls than boys. A quarter of boys instead manifest testis dysgenesis syndrome which is characterized by abnormal spermatogenesis and risk of testicular cancer. With the available current evidence, there is no consensus to recommend routine biochemical and endocrine work up of babies born SGA. A more feasible and practical approach would remain ensuring optimum fetal, maternal and child nutrition (first 1000 days of life) and regular follow-up to monitor growth and development. According to the life-cycle approach model, quality obstetric and neonatal health care for prevention of birth of SGA can greatly improve health outcomes of current and future generations in developing countries.

Biography

Sangita Yadav is the Head of the Department of Pediatrics, Maulana Azad Medical College, a premier institute of University of Delhi. She has more than 35 years of teaching experience. She is also the Head of Department and a recognized PhD Supervisor. She is currently the Joint Secretary Liaison of Indian Academy of Pediatrics. Chair Person of Adolescent Health Academy of IAP. Her area of interest is pediatric and adolescent endocrinology. She was awarded WHO Fellowship for training in USA. She is one of the Founder Member of Indian Society of Pediatric and Adolescent Endocrinology. Her interest is in adolescent health. She is the Founder Member of Adolescent chapter in 2000 and its task force. She has published more than 100 papers/articles in books and journals. She is an active and enthusiastic Member of Indian Academy of Pediatrics.

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