



# PRADER WILLI SYNDROME: CLINICAL PROFILE

Vasundhara Chugh, Archana Dayal Arya

Division of Pediatric & Adolescent Endocrinology, Institute of Child Health, Sir Ganga Ram Hospital, New Delhi, India

## INTRODUCTION

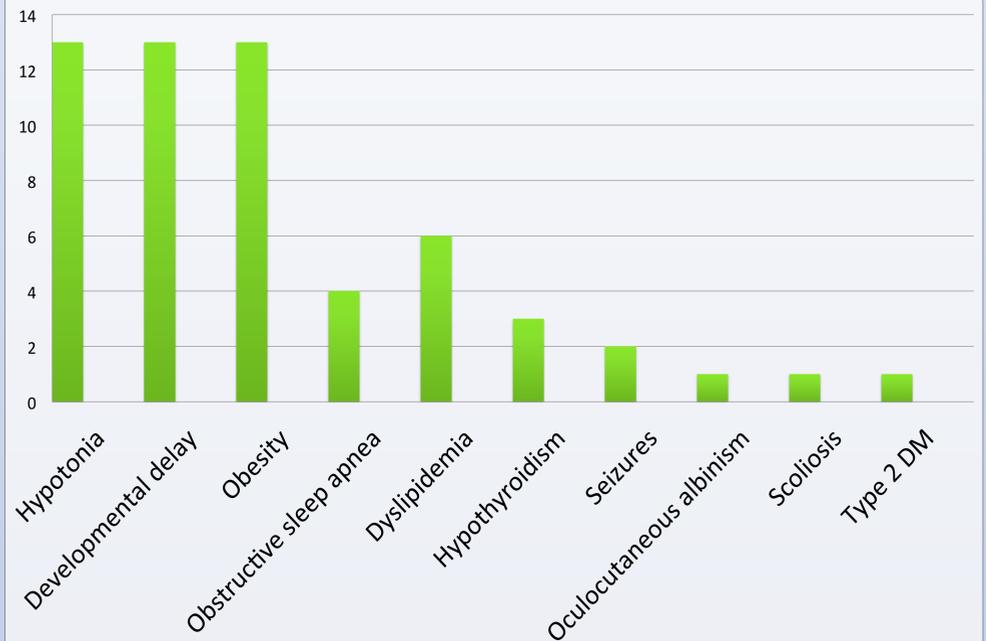
- Prader-Willi syndrome (PWS) is a complex, multisystem disorder first described in 1956.
- This disorder occurs at a frequency of 1/10,000–1/20,000 births and is the leading genetic cause of marked obesity[1].
- Hypotonia, developmental delay, short stature, small extremities, characteristic facies, hyperphagia, obesity, hypogonadism, obstructive sleep apnea, and other behavioral problems characterize PWS.
- The three genetic forms of PWS:**  
Although every case of Prader-Willi syndrome is due to the baby failing to receive active genes from a specific section of the father's chromosome 15, there are three different ways that this can happen:
  - ✓ **Paternal deletion: 70% cases**
  - ✓ **Maternal uniparental disomy (UPD): 25%**
  - ✓ **Imprinting defect: less than 5%**
- When a deletion of chromosome 15q11-q13 region is found on the mother's chromosome 15, the result is an entirely different syndrome called Angelman syndrome (AS).
- All persons suspected of having PWS should be tested with a **DNA methylation analysis**.

## CASE SERIES

We report thirteen cases of PWS (4 females, 9 males) in the age group of 1-18 years, being treated at Sir Ganga Ram Hospital, a tertiary care center in Northern India.

- 9 children (69%) were diagnosed during infancy, two between 3-5 years and two at 9 years of age.
- Eight out of nine (89%) boys had cryptorchidism; in females, one (25%) had hypoplastic labia minora & majora.
- All children in this study have some degree of cognitive impairment and behavioral issues.
- 12 children are obese and one is overweight.
- 46% (6 children) developed dyslipidemia.
- Two boys and two girls developed hypogonadism.
- Polysomnography was performed in five children, two had moderate degree of Obstructive Sleep Apnea-Hypopnea syndrome, mild variety in the other two while one had a normal study.
- One had oculocutaneous albinism, three developed hypothyroidism, one developed scoliosis and one developed Type 2 Diabetes.
- DNA methylation analysis revealed hypermethylated SNRPN gene in all children (but it doesn't differentiate the three genetic forms)
- FISH was performed in four of them, 15q11.2–q13 region deletion confirmed in three while one had uniparental disomy (confirmed by DNA polymorphism analysis)

## Clinical Features



## DISCUSSION

- Four children were started on growth hormone (GH) replacement at 9-12 years of age for growth hormone deficiency after performing polysomnography. Three showed significant improvement in height SDS and two showed reduction in BMI SDS. Case 4 failed to show any response in terms of height or BMI in on GH therapy. Case 3 expired due to unknown reason after stopping GH.

Case	Height SDS (onset of GH)	Height SDS (end of GH)
1	-0.394	+2.314
2 (still on GH)	-2.045	+2.075
3	-1.794	+2.127
4	-3.323	-3.013

Case	BMI SDS (onset of GH)	BMI SDS (end of GH)
1	2.78	2.01
2 (still on GH)	1.43	1.15
3	2.24	2.39
4	2.53	2.63

- Earlier diagnosis, allowing for earlier access to developmental resources, Recombinant human growth hormone (hGH) therapy, and anticipatory guidance, has significantly improved the long-term health and developmental outcomes of children with PWS [2].

## References

- Butler MG, Bittel DC, Kibiryeveva N, Cooley LD, Yu S. An Interstitial 15q11-q14 Deletion: Expanded Prader-Willi Syndrome Phenotype. American journal of medical genetics. Part A 2010;152A(2):404–8.
- McCandless SE. Clinical report-health supervision for children with Prader-Willi syndrome. Pediatrics 2011;127(1):195–204.

