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Title: Interventions in children with Prader-Willi syndrome and their effect on sleep related breathing disorders, a retrospective review

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Body: Introduction: Limited evidence exists regarding effect of interventions on sleep related breathing disorders (SRBD) in children with Prader-willi syndrome (PWS). Aim: Evaluate results of polysomnograms (PSG) in children with PWS and assess impact of intervention adenotonsillectomy (AT), continuous positive airways pressure (CPAP) and/or growth hormone (GH) therapy on SRBD. Methods: Retrospective chart review of all PWS patients. Those who had initial PSG as part of assessment for suitability for GH and consequently had repeat PSG between April 2004 and July 2012 were included in study. Results: Sixteen patients met the inclusion criteria. Five had GH, 2 had CPAP and GH, 1 had AT and GH, 6 had AT and 2 had no intervention. Median AHI was 6.4/hour for the initial PSG, this decreased to 3.15/hour in subsequent PSG. Median desaturation index for the group improved from 11.5/hour to 8/hour. Median SpO2 nadir increased from 79% to 85%.

Patient No.	Intervention	AHI		Desat. Index		SpO2 Nadir (%)	
		Pre	Post	Pre	Post	Pre	Post
1	GH	5.6	2.7	13	1	72	79
2	GH	14.2	1.5	13	17	81	86
3	GH	7.3	2.1	21	1	71	71
4	GH	1.2	5.1	4	21	87	68
5	GH	2.4	4.4	2	8	88	87
6	CPAP & GH	8.3	7.5	3	16	77	82
7	CPAP & GH	7.6	3.8	1	8	90	89
8	A/T & GH	5.6	1.2	3	8	83	88
9	A/T	3.6	27.6	12	0	85	95
10	A/T	4.7	2	13	1	75	83
11	A/T	10.4	3.6	31	9	76	84

12	A/T	8.5	3.7	11	23	77	75
13	A/T	7.4	1.2	16.6	6	51	86
14	A/T	7.2	4.1	17	4	88	89
15	Nil	5.5	2.7	9	4	80	87
16	Nil	2.2	11	10	14	78	69

Conclusion: Data shows that PSG results with each intervention are highly variable from patient to patient with no pattern indentified. Given the sporadic nature of outcomes, we conclude that each patient be evaluated on an individual basis.