Fertility outcomes after childhood onset hypothalamic hypogonadism

Zacharin M Dept of Endocrinology, Murdoch Children's Research Institute Royal children's hospital, Parkville, Victoria 3052, Australia

Background:

Childhood onset (CO) hypogonadotrophic hypogonadism (HH), congenital, particularly Kallman's syndrome, or acquired after midline tumours and their treatment, is reported to have significantly poorer adult spermatogenesis induction and longer duration of treatment to conception, compared with HH of post pubertal onset[1]

- hCG and FSH in adolescence: spermatogenesis after 6-9 months [12] not different for +/- pituitary hormone deficiencies
- Little data exist regarding fertility outcomes
- Recent report: absent spontaneous puberty, small testicular size predicted poor outcome: 8 conceptions, 3/8 requiring ICSI. Birth rate was not reported.[3]

Objective and hypotheses:

To report adult outcomes for a cohort of 13 men with childhood onset hypothalamic hypogonadism

3/13 had past pubertal induction with hCG /FSH,
10/13 used testosterone alone for puberty.
Age at first adult use of hCG /FSH for fertility induction 26-32 years.
All achieved adult range testosterone levels within 3-4 months
12/13 have sought fertility using FSH to date

Age	Diagnosis	Adolescent testosterone induction of puberty	Adolescent hCG + FSH	Time to 1st sperm Months	Adolescent sperm Mill/ml	Adult hcg/FSH	Time to sperm Months	Sperm count /ml	Time to 1st fertility Months	Time to 2nd sperm Months	Time to 2nd fertility
33	GHD, HH	y	no			y			**		
39	HH	y	no	n/a	n/a	y	9	80000	36	3	7
43	Hypopit	y	no			y	8	<1000	51	♣ IVF*	2
44	HH	y	no			y	9	10000	9	3	8
27	Kal	no	yes	9	<1	y			**		
31	HH	no	yes	7 s	1	y			**		
41	Kal	y	no			y	4	2.2mill	10		
41	Hypopit congenital	y	no			y	10	2 mill	14	5	9
29	Kal	y	no			y			**		
32	HH	no	yes	8	<1	y	13	4 mill	♣		
47	Kal	y	no			y	36-IVF	<`10	48 IVF		
31	Kal	y	no			y	6	2 mill			
36	prolactinoma, XRT	y	no			y	10	4 mill	♣		

*chose IVF for convenience
* * Starting fertility induction currently
♣ Partner PCOS

Results:

Time to spermatogenesis for first induction:
median 9 months (9-36 months)
mean sperm numbers: $1.78x10^6$ ($1000-4x10^6$)
Time to first fertility: mean 28 months (9-51 months)
IVF /ICSI n=2
Second round fertility induction N=4
mean time to sperm: 3.5 months, time to fertility: 8 months
A total of 10 live normal births

Conclusion:

These men with childhood onset hypothalamic hypogonadism (CO HH) demonstrate similar characteristics to earlier reports, with more rapid onset of spermatogenesis in second round induction. With ten normal live births, for men with CO HH, only one needing ICSI,
this is the largest cohort so far identified.

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margaret zacharin
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