ICSI results, FR and clinical pregnancy rate amongst men with and without Y chromosome deletions

Study	Year	YCM	N subjects (MOLGY†, SOLGY‡, AZOY§, OATY¶, SOLG††, AZO‡†, OAT§§)	Sperm retrieval (%)	Metaphase II oocytes	FR¶	Embryo	Cleaved embryo rate ^{†††}	Clinical pregnancy rate ^{‡‡‡}	Live birth rate/ET	Birth defect rate/ET	Note
Silber et al. (12)	1998	ΔAZFc ΔAZFc (6D- 6F) and beyond	10 AZOY; 4 SOLGY 5 AZOY	5/10 [50] TESE AZOY; 6/6 [100] ^a ejaculation 0/5 [0] TESE	157 N/A	89/157 [57] N/A	N/A	55/89 [62] N/A	5/16 [31] couples ongoing or delivered pregnancy; 42% clinical pregnancy rate/ET (for Y-deleted)	N/A	N/A	Total of 14 patients, but 2 patients went through 2 cycles each
		_	41 AZO	22/41 [54] TESE	290	123/290 [42]	N/A	76/123 [62]	12/41 [29] couples ongoing or delivered pregnancy; 50% clinical pregnancy rate/ET (for Y-intact)	N/A	N/A	_
		-	26 SOLG	26/26 [100] ejaculate	312	200/312 [64]	N/A	113/200 [56]	12/26 [46] couples ongoing or delivered pregnancy; 50% clinical pregnancy rate/ET (for Y-intact)	N/A	N/A	-
Rossato et al. (13)	1998	Complete ΔAZFa; partial ΔAZFb (except	1 SOLGY (3.7×10 ⁶ and 5.3×10 ⁶ cells/mL)	1/1 [100] ejaculate	8	5/8 [63]	4	4/5 [80]	0/4 [0]	N/A	N/A	-

		RBM1,										
		RBM2); partial										
		ΔAZFc (only										
		sY146, sY149)										
			= = > /									
Kleiman	1999	ΔAZFc	1 AZOY	2/2 [100]	Cycle 1: 4;	Cycle	Cycle 1:	N/A	3/11 [27], *triplet pregnancy	3/11 [27],	_	_
et al.				multiple-	cycle 2: 9;	1*: 3/4	3; cycle			*triplet		
(14)				sample	cycle 3: 8	[75];	2: 2;			pregnancy		
				TESE (three		cycle 2*:	cycle 3:					
				ICSI		2/9 [22];	6					
				attempts;		cycle 3*:						
				collected		6/8 [75]						
				sperm twice)								
Page et	1999	ΔAZFc	2 cryptozoospermic;	Originally,	≥71 (number	29/59	24	N/A	5/24 [21]; two pregnancies	4/24 [17]	1 Pulmonary	One fetus died shortly
al. (15)		(sY205,	1 AZOY	0/3 [0]	of oocytes	[59]			were twins, last was		atresia and	after birth due to
		sY254, sY624,		ejaculate;	retrieved not				singleton		right	pulmonary atresia and
		sY602, sY202,		after semen	specified for						ventricular	right ventricular
		sY158)		centrifugatio	man #3,						hypoplasia; 1	hypoplasia
				n and	only number						gastric reflux	
				extensive	of oocytes						(resolved at 3	
				searching,	injected)						months)	
				2/3 [67]								
				ejaculate;								
				1/1 [100]								
				TESE								
01	1000	A A 75 -	4.4701/	4 (4 [4 0 0]	0	0 (0 [00]	0	0 (0 [4 0 0]	I NI/A	4 (0 [00]	N1/A	
Chang	1999	ΔAZFc	1 AZOY	1/1 [100]	9	3/9 [33]	3	3/3 [100]	N/A	1/3 [33]	N/A	_
et al.				ejaculate								
(16)												
van	2001	ΔAZFc	8 SOLGY	7/8 [88]	8.1±4	55±7	17	N/A	3/17 [18]	3/17 [18]	N/A	-
Golde et				ejaculate	oocytes/ooc	[41, 69]						
al. (17)					yte retrieval	(mean ±						
					(mean ± SD)	SEM)						
		_	107 SOLG	_	9.6±4.9	70±2	230	N/A	73/230 [32]	60/230 [26] ^b	N/A	_
					oocytes/ooc	[67, 74]			. 5, 250 [62]	00,200 [20]		
					230,100,000	[[] , , , ,]						

					yte retrieval	(mean ±	1	I	T			1
					(mean ± SD)	SEM)						
Oates et	2002	ΔAZFc	16 SOLGY; 26	14/N/A	N/A	273/575	N/A	N/A	13 pregnancies	18 (five twins,	N/A	_
	2002	AAZI C	AZOY		IN/A		IN/A	17/7	10 pregnancies		IV/A	
al. (18)			AZOT	ejaculates		[47]				eight		
				(attempts						singletons)		
				unknown);								
				14/21 [67]								
				TESE								
Peterlin	2002	ΔAZFc	2 SOLGY; 1 AZOY	5/5 [100]	46	20/46	13	N/A	3/13 [23]	2/13 [15]	N/A	_
et al.	2002	DAZI C	2 00201, 1 7201	ejaculate	70	[43]	'0	19/74	0,10 [20]	2/10[10]		
						[40]						
(19)				SOLGY; 2/2								
				[100] TESE								
				AZOY								
		ΔAZFabc	2 AZOY	0/2 [0] cryo-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_
				TESE								
		ΔAZFa	1 AZOY	0/1 [0]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_
				testicular								
				recovery								
		ΔAZFc	1 AZOY	0/1 [0]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_
		ΔAZFC	I AZUY		IN/A	IN/A	IN/A	IN/A	IN/A	IN/A	IN/A	_
				testicular								
				recovery								
Kihaile	2004	ΔAZFc (except	3 OATY	6/6 ^a [100]	88	57/88	17	(2 cycles	3/17 [18]	N/A	N/A	-
et al.	1	sY158 and		ejaculate		[65]	(embryo	each) man				
(20)		sY159)					s and	1: 70%,				
	1	,					blastocy	87%; man 2:				
	1						sts)	100%, 86%;				
							313)	man 3:				
	1											
								100%, 87%				
		ΔAZFa	1 AZOY	0/1 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-
		ΔAZFabc	1 AZOY	0/1 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_

		ΔAZFc (ΔsY202,	2 AZOY	0/2 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-
		ΔsY243) ΔAZFc (except	2 AZOY	2/2 [100]	20	6/20 [30]	5 mixed	Cycle 1:	0/5 [0]	N/A	N/A	-
		sY158 and		TESE; [only			embryos	-				
		sY159)		one patient			and	2: 75%				
				attempted			blastocy					
				ICSI]			sts					
Choi <i>et al.</i> (21)	2004	ΔAZFa	1 AZOY	0/1 [0] TESE	102 injected	42/102	7	N/A	4/7 [57]	3/7 [43]	N/A	-
ai. (21)		ΔAZFb	1 AZOY	0/1 [0] TESE	oocytes	[41]						_
		Partial ΔAZFb	1 AZOY	1/1 [100]								Partial ΔAZFb had a
		(ΔsY143)		TESE								biochemical
		,										pregnancy, but # ET
												unknown
		ΔAZFbc	2 AZOY	0/2 [0] TESE	1							-
		ΔAZFc	6 AZOY	6/7 [86]								All clinical
		DAZEC	0 A201	TESE								pregnancies occurred
				1202								for AZFc, but
												unknown how many
												ET
		ΔAZFc	6 SOLGY	6/6 [100]	149 injected	80/149	14	N/A	5/14 [36]	3/14 [21]	N/A	-
				ejaculate	oocytes	[54]						
		_	23 AZO	15/24 [63]	197 injected	104/197	13	N/A	9/13 [69]	N/A	N/A	-
				TESE	oocytes	[53]						
		_	30 SOLG	30/30 [100]	290 injected	181/290	30	N/A	15/30 [50]	N/A	N/A	-
				ejaculate	oocytes	[62]						
de	2005	ΔAZFc	1 AZOY	0/1 [0]	_	-	_	_	_	_		-
Llanos		(∆gr/gr)										

et al.		ΔAZFc (Δgr/gr	11 SOLGY (ICSI	11/11 [100]	73	47/73	14/47	N/A	5/14 [36]	N/A	N/A	-
(22)		only)	data only available			[64]	[30]					
			for four participants)									
Kihaile	2005	ΔAZFa (except	1 AZOY	0/1 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
et al.	2000	sY14, sY18,	17201	0/1[0]1202	14// (14//	14//		14/7	14/71	14// (
(23)		sY78)										
(20)												
		ΔAZFabc	1 AZOY	0/1 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-
		(except sY14,										
		sY18, sY78,										
		sY143)										
		ΔAZFc (except	2 AZOY	2/2 [100]	108	60.1%±	8	87.6%±14.5	3/8 [38]	N/A	N/A	-
		sY158, sY159)		AZOY		17.9%		% (mean ±				
			3 SOLGY			(mean ±		SD)				
				TESE; 3/3		SD)						
				[100]								
				SOLGY								
				ejaculate								
		_	11 Oligozoospermic	N/A	269	71.6%±	21	85.1±9.4	9/21 [43]	N/A	N/A	-
						15.7%		(mean ± SD)				
						(mean ±						
						SD)						
Stouffs	2005	ΔAZFa	1 AZOY	0/1 [0] TESE	_		_		_	_	_	Combined
et al.				' '								cryptozoospermia
(24)												(<0.1×106) and SOLG
, ,												together
		ΔAZFb	2 AZOY; 1 SOLGY	0/3 [0] TESE	_	_	_	_	_	_	_	-
		ΔAZFc	16 AZOY; 11	10/17 [59]	379	209/379	32	N/A	7/32 [22]	5 (delivery or	_	
			SOLGY (16 of these	TESE		[55]				ongoing), but		
			attempted 40 ICSI							3 babies; what		
			cycles)							to do here?		
		ΔAZFbc	5 AZOY	0/5 [0] TESE	_	_	_		_	-	_	

		ΔAZFabc	2 AZOY	0/2 [0] TESE	_	-	_	-	-	-	-	
		-	-	12/38 [32] ejaculate	-	-	_	-	-	_	-	-
Minor et al. (25)	2007	Partial Δheterochrom atin; [ΔsY159, ΔsY160, ΔsY1291 (gr/gr)]	1 OATY	N/A	4	3/4 [75]	2	N/A	N/A	1/2 [50]	N/A	_
Stahl et al. (26)	2010	ΔAZFa	4 AZOY	TESE 0/2 [0]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Paper includes prevalence of YCM stratified by sperm concentration, but these men did not undergo TESE
		ΔAZFb	17 AZOY	0/7 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-
		ΔAZFbc	31 AZOY	0/7 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-
		ΔAZFabc (complete Yq)	18 AZOY	0/4 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-
		ΔAZFc	50 AZOY; 28 SOLGY	15/21 [71] AZOY TESE	N/A	N/A	N/A	N/A	10/15 [67] (clinical pregnancies/patients sperm retrieved)	N/A	N/A	-
		Partial ΔAZFbc deletion that spared the centromeric portion of the AZFb region	1 SOLGY	1/1 [100] ejaculate	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-

		_	385 AZO	188/385 [49]	N/A	N/A	N/A	N/A	91/185 [48] (clinical pregnancies/patients sperm retrieved)	N/A	N/A	-
Plotton et al. (27)	2010	Partial ΔAZFb; ΔsY142, ΔsY143, ΔsY1197, ΔsY1192, ΔG34984 (PRY); partial ΔAZFc (ΔDAZ1, ΔDAZ2); deletion of palindrome P3 with extion to u1 region; G1- g3 inversion	1 OATY	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Natural pregnancy occurred during investigations
Gamber a et al. (28)	2010	ΔAZFC	1 AZOY	1/1 [100] TESE	6	3/6 [50] excellen t quality (does this mean that it could be >3, but only 3 were "excelle nt"?)	3	N/A	3/3 [100] *triplets	3/3 [100] *triplets	N/A	
Kilic et al. (29)	2010	ΔsY127, ΔsY134 (of AZFb); mosaicsm 45X	1 AZOY	1/1 [100] TESE	N/A	N/A	3	N/A	0/3 [0] (assuming all three embryos were transferred)	0/3 [0] (assuming all three embryos	N/A	-

		(5%)/46XY								were		
		(95%) by								transferred)		
										transierreu)		
		cytogenetic										
		analysis										
		ΔsY127,	1 AZOY	0/1 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_
		ΔsY134 (of										
		AZFb);										
		ΔsY254,										
		ΔsY255 (of										
		AZFc); 45,X										
		(45%)/ 46XY										
		(55%)										
		mosaicism										
Mateu et	2010	ΔAZFc	5 SOLGY; 1 AZOY	N/A	13 (median)	61%	N/A	N/A	60%	3 No. live	N/A	_
al. (30)					No. oocytes					births		
		_	9 SOLG; 1 AZO	N/A	11 (median)	60%	N/A	N/A	67%	9 No. live	N/A	_
					No. oocytes					births		
Shi et al.	2011	Duplication in	1 OATY	2/2 [100]	_	_	2	_	_	2/2 [100] first	_	_
(31)		Yp11.2 which		ejaculate			embryos			ICSI, both		
		contains					first ICSI			preterm but		
		AMELY, PRKY					cycle; 2			did not survive		
		and TBL1Y					embryos			(immature		
		genes, and					second			lung		
		five TTTYs					ICSI			development)		
		(TTTY16,					cycle			[2004]; 2/2		
		TTTY12,					5,5.5			[100] second		
		TTTY18,								ICSI [2007]		
		777770, 777Y19 and								.551 [2507]		
		TTTY11;										
		ΔsY124,										
		ΔsY127										
		(Partial										
		ΔAZFb);										
		(deletion										

		included										
		whole P5, P4										
		and DYZ19										
		regions); the										
		final karyotype										
		was										
		interpreted as:										
		46XY, arr cgh;										
		Yp11.2										
		(AMELY→TTT										
		Y11).2,										
		Yq11.22										
		(XKRY→RPS4										
		<i>Y2</i>) · 0										
Kim et	2012	ΔAZFa	5 AZOY	No sperm	_	_	_	_	_	_	_	_
al. (32)				successfully								
				collected								
		ΔAZFb	7 AZOY; 1 SOLGY	No sperm	-	_	_	_	_	_	_	_
				successfully								
				collected								
		ΔAZFc	28 AZOY; 26	23 couples	18.7±8.5	318/488	33	_	13/33 [39]	13/33 [39]	_	_
			SOLGY; 1 MOLGY	attempted	(mean ± SD)	[65]						
			(5–20×10 ⁶	ICSI;	no. retrieved							
			sperm/mL)		oocytes;							
					488 total							
				14 pts TESE								
				9 pts								
				ejaculate								
		ΔAZFabc	9 AZOY	No sperm	_	_	_	_	_	_	_	_
				successfully								
				collected								

		ΔAZFbc	24 AZOY	No sperm	-	_	-	_	-	_	_	-
				successfully								
				collected								
1	0040	A A 7.F.	140,001,007,0	Eleculate	1 00 1	4 400 (4	110	4000/4000	00/440 [00]	00/440 [00]		0 (11 11 1
Liu et al.	2013	ΔAZFc	143 SOLGY (based	Ejaculate	1,834;	1,133/1,	110	1203/1280	36/110 [33]	29/110 [26]	0	Some of the patients
(33)			upon mean sperm		15.71±8.644	834 [62]		[94]		delivery rate		have abnormal
			concentration); 1.1×		(mean ± SD)					(birth of		karyotype (inversions,
			10 ⁶ sperm/cc (mean							liveborn or		etc.)
			sperm							stillborn)		
			concentration);									
			124/143 [87]									
			patients had									
			karyotype tested; n									
			(115/143 tested pts									
			had 46XY [80]);									
			(9/143 [6] abnormal									
			karyotype)									
		_	143 MOLG (based	Ejaculate	1,700;	1,153/1,	117	1,144/1,299	39/117 [33]	30/117 [26]	0	_
			upon mean sperm		15.70±8.441	700 [68]		[88]		delivery rate		
			concentration);		(mean ± SD)					(birth of		
			10.55 ×10 ⁶							liveborn or		
			sperm/cc							stillborn)		
Choi et	2013	ΔAZFbc	25 AZOY; 4 OATY	0/9 [0]	N/A	_	_	_	_	2/3 [67] OATY	_	-
al. (34)				AZOY TESE;						(patient/patien		
				N/A OATY						t attempted		
				ejaculate						ICSI); 0/17 [0]		
										AZOY		
										(patient/patien		
										t attempted		
										ICSI)		
		ΔAZFc	58 AZOY; 23 OATY	8/21 [38)	N/A	N/A	N/A	N/A	N/A	8/46 [17]	_	-
				AZOY TESE;						AZOY		
				N/A OATY						(patient/patien		
				ejaculate						t attempted		
]											

										ICSI); 9/16 [56]		
										OATY		
		_	130 AZO	21/82 [26]	N/A	N/A	N/A	N/A	N/A	23/138 [17]	N/A	-
			49 OAT	AZO; N/A	N/A	N/A	N/A	N/A	N/A	total	N/A	
			49 OAT	OAT	IN/A	IN/A	IN/A	IN/A	IWA	patients/patie	IV/A	_
				ejaculate						nted		
										attempted		
										ICSI		
Sen et	2015	gr/gr	18 AZOY; 33	N/A	N/A	N/A [77]	28	N/A	3/10 [30] men; not ET	N/A	N/A	10 men attempted
al. (35)			(S)OLGY									ICSI
		b1/b3	1 AZOY; 2 (S)OLGY									
		b2/b3	1 AZOY; 1 (S)OLGY									
		gr/gr	8 control	N/A	N/A	N/A [78]	734	N/A	59/230 [26] men; NOT ET	N/A	N/A	ET done in 230 men,
		b1/b3	2 control	_								though 239 attempted
		01/03	2 CONTROL									ICSI
		b2/b3	6 control									
Zhu et	2015	Location of	27 AZOY	14/27 [52]	228	154/228	14;	137/154 [89]	7/14 [50]	5/7 [71] (2/7	-	-
al. (36)		deletion not		TESE		[68]	2.21±0.4			miscarriage		
		stated					3 (mean			rate; 2/7		
							± SD)			multiple rate)		
		Location of	43 (S)OLGY (sperm	43/43 [100]	670	468/670	43;	420/468 [89]	25/43 [58]	20/25 [80]	N/A	-
		deletion not	concentration not	ejaculate		[70]	2.19±0.3			(5/25		
		stated	stated)				9 (mean			miscarriage		
							± SD)			rate; 6/25		
										multiple rate)		
		_	28 AZO	N/A	408	307/408	28;	291/307 [95]	16/28 [57]	12/16 [75]	N/A	-
						[74]	2.18±0.3			(4/16		
							9 (mean			miscarriage		
							± SD)			rate; 2/16		
										multiple rates)		
							1					

		_	86 (S)OLG (sperm	N/A	1,263	958/1,26	86;	903/958 [94]	51/86 [59]	45/51 [88]	N/A	_
			concentration not			3 [76]	2.15±0.3			(6/51		
			stated)				6 (mean			miscarriage		
							± SD)			rate; 14/51		
										multiple rate)		
Zhu et	2015	ΔAZFc	3 AZOY; 3 SOLGY;	Inclusion	11.50±5.71	171/250	26;	155/171 [91]	12/26 [46]	11/26 [42]	N/A	Exclusion criteria:
al. (37)		(ΔsY152)	6 MOLGY	criteria	(mean ± SD)	[68]	2.38±0.5			delivery rate		complete fertilization
				required			7 (mean			per transfer;		failure in the previous
				successfully			± SD)			3/12 [25]		ICSI treatment
				obtained						multiple rate;		
				sperm by						2/11 [18]		
				TESE or						preterm rate;		
				masturbatio						1/12 [8]		
				n; total						miscarriage		
				attempts						rate		
				N/A								
		ΔAZFc	31 AZOY; 14	Inclusion	11.90±6.67	582/824	70;	532/582 [91]	38/70 [54]	31/70 [44]	N/A	_
			SOLGY	criteria	(mean ± SD)	[71]	2.29±0.4			delivery rate		
			4	required			6 (mean			per transfer;		
				successfully			± SD)			8/38 [21]		
				obtained						multiple rate;		
				sperm by						5/32 [16]		
				TESE or						preterm rate;		
				masturbatio						7/38 [18]		
				n; total						miscarriage		
				attempts						rate		
				N/A								
		-	21 AZO; 15 SOLG;	Inclusion	11.67±7.11	636/849	73;	599/636 [94]	40/73 [55]	34/73 [47]	N/A	_
			14 MOLGY	criteria	(mean ± SD)	[75]	2.42±0.5			delivery rate		
				required		(/total #	0 (mean			per transfer;		
				successfully		oocytes	± SD)			10/40 [25]		
				obtained		injected)				multiple rate;		
				sperm by						7/34 [21]		
				TESE or						preterm rate;		
				masturbatio						6/40 [15]		

				n; total						miscarriage		
				attempts						rate		
				N/A								
Ko et al.	2016	ΔAZFbc;	2 AZOY	0/2 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-
(38)		(46XY/45X		or mTESE								
		(33:1) and										
		45X/46X,idic(Y										
)(q11.2) (12:18)										
		ΔAZFabc;	1 AZOY	0/1 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-
		46X,der(Y).ish		or mTESE								
		i(Y)(p10)(pter+										
		+, SRY++)										
		ΔAZFc	6 AZOY	3/6 [50]	40	11/40	N/A	N/A	N/A	N/A	N/A	-
				TESE or		[28]						
				mTESE								
			61 AZO	28/61 [46]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_
				TESE								
Schwarz	2016	ΔAZFb	1	0/1 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-
er et al.				(multilocular								
(11)				or micro-								
				TESE, type								
				not stated)								
		ΔAZFbc	2	0/2 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	_
				(multilocular								
				or micro-								
				TESE, type								
				not stated)								
		ΔAZFc	20	10/20 [50];	Unknown,	N/A	N/A	N/A	2/6 [33] patients attempted	1/2 [50]	N/A	_
				2/8 [25]	but 2.3				ICSI (not specified if clinical			
				multilocular	cycles mean				or biochemical pregnancy)			
				TESE; 8/12	carried out							

				[67] micro-	for 6 of the							
				TESE	10 couples							
		ΔAZFc + other	2	0/2 [0] TESE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-
		chromosomal		(multilocular								
		disorder		or micro-								
				TESE, type								
				not stated)								
Liu et al.	2017	ΔAZFb	1 MOLGY	1/1 [100]	200;	104/200	25	95/104 [91]	6/25 [24]	6/24 [25]	0	_
(39)		(ΔsY127,		ejaculate	10.19±8.57	[52]						
		ΔsY134,			(mean ± SD)							
		ΔsY143)										
		ΔAZFc	1 MOLGY	1/1 [100]								_
		ΔΑΖΙ C (ΔsY152)	TWOLGT	ejaculate								
		(Δ51152)		ejaculate								
		ΔAZFc	2 MOLGY	2/2 [100]	-							-
		(ΔsY152,		ejaculate								
		ΔsY254,										
		ΔsY255,										
		ΔsY157)										
		ΔAZFc	12 MOLGY	12/12 [100]								_
		(∆sY152,		ejaculate								
		ΔsY254,										
		ΔsY255)										
			26 MOLG	N/A	336;	278/336	30	241/278 [87]	10/00 [40]	13/53 [25]	0	
		_	26 MOLG	IN/A			30	241/2/8[8/]	13/30 [43]	13/53 [25]	0	_
					12.23±6.56	[83]						
					(mean ± SD)							
Goncalv	2017	ΔAZFa	N/A	N/A	71	46/71	35	44/46 [96]	1/35 [3]	1/35 [3]	0	_
es et al.						[65]			-			
(40)												
		ΔAZFb	-	N/A	55	30/55	19	26/30 [87]	2/19 [11]	0/19 [0]	0	_
		(some partial,				[55]						
		some										
		complete)										
	<u> </u>				I	I]		I		

		ΔAZFc	N/A	N/A	716	386/716 [54]	188	357/386 [92]	28/188 [15]	20/188 [11]	1	-
Zhang et al. (41)	2017	ΔAZFb (complete)	1 OATY	1/1 [100] ejaculate	9	7/9 [78]	2	-	1/2 [50]	1/2 [50]	0	-
Arafa et al. (42)	2018	ΔAZFa (n=1)	7 AZOY; 6 SOLGY; ΔAZFbc 0/2 [0] TESE; ΔAZFc 2/2 [100], 2/3 [67] TESE	N/A	N/A	N/A	N/A	N/A	No pregnancy	N/A	N/A	-
		ΔAZFbc (n=5)		N/A	N/A	N/A	N/A	N/A		N/A	N/A	_
		ΔAZFc (n=7)		N/A	N/A	N/A	N/A	N/A		N/A	N/A	-
Bahmani	2018	ΔAZFc	15 AZOY	N/A	N/A	0/20 [0]	N/A	N/A	N/A	N/A	N/A	-
mehr et al. (43)		ΔAZFbc	4 AZOY	N/A	-	participa nts						
		ΔAZFabc	1 AZOY	1/1 [100] TESE								
Sabbag hian et al. (44)	2018	ΔAZFc	116 AZOY; 79 oligozoospermic	42/96 [44] micro-TESE; 34/34 [100] ejaculate	N/A	[46]	N/A	N/A	17/48 [35] of patients after embryo transfer	16/48 [35] patients after embryo transfer; 12 births (8 singletons, 4 twins)	-	Unknown if FR is presented as per oocyte or per patient

^{†,} Mild or moderate oligozoospermia with a YCM (sperm concentration 5×10^6 — $<15\times10^6$ sperm/cc); ‡, severe oligozoospermia with a YCM (sperm concentration >0— $<5\times10^6$ sperm/cc); §, azoospermia with a YCM (0 sperm/cc); ¶, oligoasthenoteratoazoospermic with a YCM; ††, mild or moderate oligozoospermia without a YCM (sperm concentration 5×10^6 — $<15\times10^6$ sperm/cc); ‡‡, azoospermia without a YCM (0 sperm/cc); §§,

oligoasthenoteratoazoospermic without a YCM; ¶, percentage of the total number of metaphase II oocytes injected; †††, percentage of the total number of embryos; ‡‡‡, defined as the ratio of clinical pregnancies and number of ETs; a, total of 14 patients, but 2 patients went through 2 cycles each; b, Including two cycles with an ongoing pregnancy, but with unknown outcome at the closing date of data collection. ICSI, intracytoplasmic sperm injection; FR, fertilization rate; YCM, Y chromosome microdeletion; AZF, azoospermic factor; ICSI, intracytoplasmic sperm injection; microTESE, microdissection testicular sperm extraction; ET, embryo transfer.