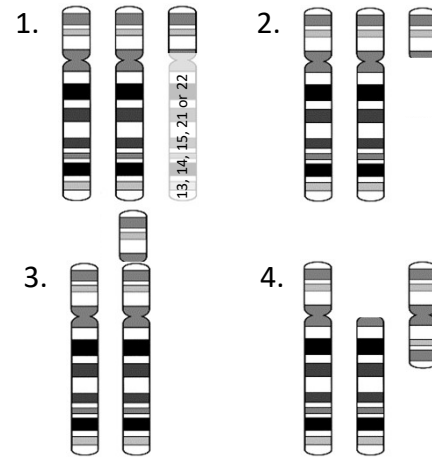


# Trisomy 18p

## Treatment and Surveillance

ICD-10 =Q93.2

*These recommendations are based primarily on the medical literature and therefore can be incomplete. It should be noted that there is a great deal of variation among individuals with Trisomy 18p. Not all complications or concerns will be listed in this document. However, the recommendations contained here should be used as a baseline for monitoring and the health of individuals with Trisomy 18p.*



There are 27 cases reported in the literature. These cases did not have additional chromosomal copy number changes and were not mosaic. This included:

- 14 males and 13 females
- 11 were identified incidentally; not related to the person's own developmental delay or intellectual disability.

*\* Not every aspect was described for every patient especially for the incidentally identified cases. Therefore the denominator may be different for different phenotypes*

### Potential conditions in a neonate:

- Birth weight mean 20<sup>th</sup> percentile
- Birth length mean 25<sup>th</sup> percentile
- OFC mean 50<sup>th</sup> percentile
- Neonatal complications
  - None occurred in more than single cases
- Congenital malformations
  - Cryptorchidism in 21% of males

### Immediate Referrals to:

- Appropriate subspecialist as indicated by initial evaluations
- Genetics follow-up if not previous to diagnosis
- Early intervention/developmental services
- The Chromosome 18 Registry & Research Society
- The Chromosome 18 Clinical Research Center

### Closely monitor and manage:

- Psychomotor development
  - 1 normal, 4 slight delay, 4 delayed
- Intellectual Development
  - 7 normal, 10 mild ID or LD, 5 moderate ID
- Neurology
  - Seizures, childhood onset – 11%
  - Facial nerve palsy, congenital – 7%

### Hearing

- Hearing loss- 11%

### Adult Outcomes

- 5 of 5 adult females had children
- No males had children
- 2 males had oligospermia

### **Immediate Referrals to:**

- **Genetics**

- Referral to genetics is appropriate to review the condition, its management, and implications for other family members
- A minority of parents of children with Trisomy 18p have a chromosome abnormality
- There have been case reports of parents with mosaicism or with some type of chromosome rearrangement

- **Early intervention/developmental services**

- All children with chromosome 18 abnormalities have a risk for developmental delay and intellectual disabilities. Prompt referral to a program that includes physical, occupational and speech therapy is important in order to maximize their development

- **Referral to Chromosome 18 Registry & Research Society**

- The Chromosome 18 Registry is a parent support organization that provides family members with the opportunity to meet and learn from those who have gone before them. These are complex conditions to manage even in the least affected children, making the establishment of a network of support a crucial component for maximizing the affected child's potential. The Registry has annual national and international conferences, regional get-togethers and social media outlets, all with programs for parents, siblings and affected adults. The Registry works closely with and financially supports the Chromosome 18 Clinical Research Center. ([www.chromosome18.org](http://www.chromosome18.org))

- **Referral to the Chromosome 18 Clinical Research Center**

- The goal of the Chromosome 18 Clinical Research Center is to make the chromosome 18 abnormalities the first treatable chromosome abnormalities. Anyone with any chromosome 18 abnormality is eligible to enroll and encouraged to enroll. Once enrolled, participants have the opportunity to be involved in longitudinal studies of developmental progress, and when available, other studies that could include surveys or treatment trials. Families enrolled in the Research Center will also be the first to know new information about the conditions when it becomes available. Enrollment is a key part of proactive clinical management ([www.pediatrics.uthscsa.edu/centers/chromosome18](http://www.pediatrics.uthscsa.edu/centers/chromosome18))

## References

- Grosso S, Pucci L, Di Bartolo RM, Gobbi G, Bartalini G, Anichini C, Scarinci R, Balestri M, Farnetani MA, Cioni M, Morgese G, Balestri P. Chromosome 18 aberrations and epilepsy: a review. *Am J Med Genet A*. 2005 Apr 1;134A(1):88-94. doi: 10.1002/ajmg.a.30575.
- Habedank M, Trost-Brinkhues G. Monosomy 18p and pure trisomy 18p in a family with translocation (7;18). *J Med Genet*. 1983 Oct;20(5):377-9. doi: 10.1136/jmg.20.5.377.
- Jacobsen P, Mikkelsen M. Chromosome 18 abnormalities in a family with a translocation t(18p--, 21p+). *J Ment Defic Res*. 1968 Jun;12(2):144-61. doi: 10.1111/j.1365-2788.1968.tb00254.x.
- Jedraszak G, Copin H, Demailly M, Quibel C, Leclerc T, Gallet M, Benkhalifa M, Receveur A. Azoospermia and trisomy 18p syndrome: a fortuitous association? A patient report and a review of the literature. *Mol Cytogenet*. 2015 Jun 4;8:34. doi: 10.1186/s13039-015-0141-8.
- Johansson B, Mertens F, Palm L, Englesson I, Kristoffersson U. Duplication 18p with mild influence on the phenotype. *Am J Med Genet*. 1988 Apr;29(4):871-4. doi: 10.1002/ajmg.1320290418. PMID: 3400732
- Li S, Tuck-Muller CM, Martínez JE, Rowley ER, Chen H, Wertelecki W. Prenatal detection of de novo duplication of the short arm of chromosome 18 confirmed by fluorescence in situ hybridization (FISH). *Am J Med Genet*. 1998 Dec 28;80(5):487-90. doi: 10.1002/(sici)1096-8628(19981228)80:5<487::aid-ajmg9>3.0.co;2-y.
- Mabboux P, Brisset S, Aboura A, Pineau D, Koubi V, Joannidis S, Labrune P, Tachdjian G. Pure and complete trisomy 18p due to a supernumerary marker chromosome associated with moderate mental retardation. *Am J Med Genet A*. 2007 Apr 1;143A(7):727-33. doi: 10.1002/ajmg.a.31633.
- Marical H, Le Bris MJ, Douet-Guilbert N, Parent P, Descourt JP, Morel F, De Braekeleer M. 18p trisomy: a case of direct 18p duplication characterized by molecular cytogenetic analysis. *Am J Med Genet A*. 2007 Sep 15;143A(18):2192-5. doi: 10.1002/ajmg.a.31881.
- Moog U, Engelen JJ, de Die-Smulders CE, Albrechts JC, Loneus WH, Haagen AA, Raven EJ, Hamers AJ. Partial trisomy of the short arm of chromosome 18 due to inversion duplication and direct duplication. *Clin Genet*. 1994 Dec;46(6):423-9. doi: 10.1111/j.1399-0004.1994.tb04410.x.
- Orendi K, Uhrig S, Mach M, Tscheppe P, Speicher MR. Complete and pure trisomy 18p due to a complex chromosomal rearrangement in a male adult with mild intellectual disability. *Am J Med Genet A*. 2013 Jul;161A(7):1806-12. doi: 10.1002/ajmg.a.35986.
- Plaja A, Lloveras E, Martínez-Bouzas C, Barreña B, Del Campo M, Fernández A, Herrero M, Barranco L, Palau N, López-Aríztegui MA, Català V, Tejada MI. Trisomy 18p caused by a supernumerary marker with a chromosome 13/21 centromere: a possible recurrent chromosome aberration. *Am J Med Genet A*. 2013 Sep;161A(9):2363-8. doi: 10.1002/ajmg.a.36102.
- Rodríguez L, Liehr T, Mrasek K, Mansilla E, Martínez-Fernández ML, Garcia A, Martínez-Frías ML. Small supernumerary chromosome marker generating complete and pure trisomy 18p, characterized by molecular cytogenetic techniques and review. *Am J Med Genet A*. 2007 Nov 15;143A(22):2727-32. doi: 10.1002/ajmg.a.32003.
- Rosano M, De Salazar E, Brinchi V, Dalapiccola B. Due casi di sindrome 18p- ed un caso di trisomia 18p in una stessa fratria. *Neuropsych Infant*. 1977; 197:1221-1237.
- Sheth F, Andrieux J, Sheth J. Supernumerary marker chromosome in a child with microcephaly and mental retardation. *Indian Pediatr*. 2010 Mar;47(3):277-9. doi: 10.1007/s13312-010-0038-x.
- Takeda K, Okamura T, Hasegawa T. Sibs with tetrasomy 18p born to a mother with trisomy 18p. *J Med Genet*. 1989 Mar;26(3):195-7. doi: 10.1136/jmg.26.3.195.
- Taylor KM, Wolfinger HL, Brown MG, Chadwick DL. Origin of a small metacentric chromosome: familial and cytogenetic evidence. *Clin Genet*. 1975 Nov;8(5):364-9. doi: 10.1111/j.1399-0004.1975.tb01515.x.
- Wolff DJ, Raffel LJ, Ferré MM, Schwartz S. Prenatal ascertainment of an inherited dup(18p) associated with an apparently normal phenotype *Am J Med Genet* 41(3) 319–321: 3 JUN 2005 | DOI: 10.1002/ajmg.1320410311