Various imprinting disorders underlying Silver-Russell Syndrome-phenotypic compatable genotype
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Disclosure of Conflict of Interest
Masayo Kagami: National Research Institute for Child Health and Development, Tokyo, Japan
I have no COI with regard to our presentation.

Background

Imprinted genes
- Paternal Expressed Genes (PEGs)
  - Differentially methylated region (DMR)
    - Different methylation statuses depending on their parental origin.
    - Function as imprinting center
  - Maternal Expressed Genes (MEGs)
    - Methylated allele
    - Unmethylated allele

Silver-Russell syndrome (SRS)
- SRS diagnosis criteria (Netchine et al. 2007)
  1. Birth length and/or birth weight ≤5 SDS
  2. Growth failure
  3. Premature body development
  4. Body asymmetry
  5. Feeding difficulties

Genetic causes
- H19-DMR
- Hypomethylation (30%)
- UPD(7)mat (10%)
- Methylated allele
- Unmethylated allele

Objectives
To clarify the relevance of imprinting disorders other than SRS to SRS-like phenotypes.

Methods

Patients with SRS-like phenotypes
- Methylation analysis for 9 DMRs using pyrosequencing

Hypomethylation of the H19-DMR

H19-DMR
Hypomethylation

Results

Impatient region
- 11p15
- 7q22
- 7q11
- 1p36
- 1q24
- 2q31
- 6p24
- 5q11-12/13q13.3

DMR
- H19
- PEG1
- H19
- PEG10
- Kv11
- MEG3
- PLAGL1
- SNRPN
- A/B

Impprinting disorders other than SRS

Hypomethylation of the PLAGL1-DMR: UPD(6)mat

Hypomethylation of the IG-DMR and/or MEG3-DMR: TS14

Hypomethylation of the SNRPN-DMR: PWS (UPD(15)mat)

Summary
- We identified three TS14 patients with epimutation, two PWS patients with UPD(15)mat and one patient with UPD(6)mat in 95 patients with SRS-like phenotypes.
- These results suggest that the imprinting disorders other than SRS also demonstrate SRS-compatible phenotype.