OBJECTIVE
To study structure disorders of sex development (DSD) 46,XY by one center

SUBJECTS and METHODS
It was included 60 patients with diagnosis DSD 46,XY at birth to 18 years.

For all patients was conducted structural evaluation of the external (by External Masculinization Score, EMS, 0-12) and internal genitalia (by pelvic ultrasound, n=60, laparoscopy, n=20), hormonal research (testosterone, dihydrotestosterone, androstendione, anti-Mullerian hormone, AMH, inhibin B, follicle-stimulating hormone, luteinising hormone) in mini-puberty (n=28), neutral period (n=21) and puberty (n=11), molecular genetic studies Ion Torrent custom Ampliseq DSD (n=37) and gene such us AR (n=14), SF1 (n=2), SRY (n=3), CYP21 (n=2), WT1 (n=2), histology of gonads removed (n=23 by 15 patients). Gonadal dysgenesis criteria: derivats Mullerian duct, AMH < 55 ng/ml in mini-puberty and AMH < 85 ng/ml in neutral period.

RESULTS

A definitive diagnosis was received in 56% (33/60) of children with 46,XY DSD

Disorders of gonadal (testicular) development
Disorders in androgen synthesis or action
Persistent Mullerian duct syndrome
Smith-Lemli-Opiz syndrome
Unknown variant DSD 46,XY

Disorders of gonadal development include complete gonadal dysgenesis, partial gonadal dysgenesis and ovotesticular DSD

Complete gonadal dysgenesis
Partial gonadal dysgenesis
ovotesticular DSD

Disorders in androgen synthesis or action presented by total androgen insensitivity syndrome

Disorders of gonadal development detected in 28% (17/60) patients, dominant mutations by frequency: partial gonadal dysgenesis (3%, 1/33), Smith–Lemli–Opiz syndrome (6%, 2/33), Persistent Mullerian duct syndrome (10%, 3/33), androgen insensitivity syndrome (17%, 9/53), total gonadal dysgenesis (10%, 3/33), Smith-Lemli-Opiz syndrome (3%, 1/33). Mutations in genes involved in gonadal development detected in 28% (17/60) patients, dominant mutations by frequency – AR (53%), SRY (17%), SF1 (12%), WT1 (6%), AMH (6%), DHCR7 (6%).

While y 44% (27/60) of patients didn’t have verified variant of nosological pathology and 5 patients had mutation in genes with pathological significance of today is not known.

CONCLUSION
Completed complex survey including molecular genetic analysis allowed to verify nosological variant of DSD 46,XY only in 56% (33/60) of patients. Rating of nosological variants of DSD 46,XY by frequency: partial gonadal dysgenesis (67%, 22/33), androgen insensitivity syndrome (27%, 9/33), total gonadal dysgenesis (10%, 3/33), persistent Mullerian duct syndrome (3%, 1/33), ovotesticular (3%, 1/33). Mutations in genes involved in gonadal development detected in 28% (17/60) patients, dominant mutations by frequency – AR (53%), SRY (17%), SF1 (12%), WT1 (6%), AMH (6%), DHCR7 (6%).