Concomittant Injury Of The Anterolateral Extra-Articular Structures In Pediatric Patients With Anterior Cruciate Ligament Rupture

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DISCLOSURES

Michael Liebensteiner: Consultant Stryker
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Benjamin Henninger: Nothing Declared

Christoph Kittl: Nothing Declared

Rene El-Attal: Nothing Declared

Johannes Giesinger: Nothing Declared

Christof Kranewitter: Nothing Declared
Due to a lack of evidence it was the aim of the study to investigate the injury rate of...

a) the anterolateral ligament (ALL) and
b) the deep portions of the iliotibial tract (deep ITT)

- in pediatric patients with anterior cruciate ligament (ACL) ruptures
- and to calculate inter- and intraobserver agreement
Hypothesis

- It was hypothesized to find Cohen's Kappa values for intra- and interobserver reproducibility > 0.7 (indicating substantial agreement)
METHODS

- Knee MRI from pediatric patients with ACL ruptures
- analyzed by two musculoskeletal radiologists separately and twice

ALL injury:
- diagnosed in case of discontinued fibers, irregular structure of the ALL or presence of intra- or peri-ligamentous edema.
  a) proximal (above meniscus level),
  b) distal (below meniscus level) or
  c) tibial avulsion (Segond type).
- tibial section of the ALL in coronal plane MRI
deep ITT injury:

- diagnosed in case of discontinued fibers, irregular structure of the ALL or presence of intra- or peri-ligamentous edema.

a) proximal: at the deep attachments of the ITT to the distal femur (Kaplan fibres) or

b) distal: at the capsulo-osseous layer of the ITT.
METHODS

the deep attachments of the ITT to the distal femur (Kaplan fibres)
RESULTS

**ALL:**
- proximal part of the ALL: ruptured in 20%
- distal part of the ALL: ruptured in 16%
- In one of the cases (4%) there was a second lesion

**deep ITT:**
- deep attachments of the ITT to the distal femur (Kaplan fibres): injured in 16%.
- capsulo-osseous layer of the ITT was determined 'not visible' in 100% of the knees
RESULTS

INTER- AND INTRAOBSERVER AGREEMENTS

- above 92% and 84% respectively
- kappa values 0.756 - 1.0 and 0.519 - 1.0, respectively
- hypothesis to find substantial agreement (kappa > 0.7) was found confirmed for all situations except intra-observer reproducibility for the distal part of the ALL (kappa 0.519).
Conclusions

- The ALL and the deep portions of the ITT are frequently injured in pediatric patients with ACL rupture

- substantial inter- and intraobserver agreement was determined for MRI assessment

- (sole exception: intra-observer reproducibility for the distal part of the ALL)
Thank you