

# Anterior Knee Pain in Patients with Cerebral Palsy

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## To the Editor:

We have read the published article by Choi et al.<sup>1)</sup> “Anterior knee pain in patients with cerebral palsy” with great interest. In their prospective study, the authors tried to identify risk factors of knee pain in children with cerebral palsy. There is very limited study in the literature which investigates prevalence and risk factors of knee pain in cerebral palsy. So this prospective study is valuable. However, we would like to offer additional points that should be discussed in children with cerebral palsy who have knee pain.

Knee pain may result from flexion contracture due to increased compression on patella femoral joint in children with cerebral palsy.<sup>2)</sup> Increased and extended quadriceps activity occurs as compensation in older children with cerebral palsy in the course of time. Double site effect of forces on with muscles of hamstring and quadriceps increases compression on patella femoral joint. So quadriceps activity may have measured with Ely test or computer gait analysis. We thought increased quadriceps activity is another risk factor for knee pain in children with cerebral palsy.

In addition, maltracing of patella results from increased femoral or tibial internal torsion may increase compression of patella femoral joint. So increased femoral and tibial torsion might be risk for knee pain in children with cerebral palsy.

Valgus deformity in knee joint enhances the forces at patella femoral joint. Therefore, valgus deformity can cause the anterior knee pain.<sup>3)</sup>

In conclusion, we thought that evaluation of quadriceps activity, valgus deformity and internal torsion defor-

mity of femur and tibia might be beneficial for additional risk of knee pain in children with cerebral palsy.

## CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

## REFERENCES

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**Young Choi, Sang Hyeong Lee, Chin Youb Chung, Moon Seok Park, Kyoung Min Lee, Ki Hyuk Sung, Sung Hun Won, In Hyeok Lee, In Ho Choi, Tae-Joon Cho, Won Joon Yoo, Seung Yeol Lee, Reply:**

We appreciate your interest in and thoughtful comment on our study. We absolutely agree with you that knee pain may result from flexion contracture due to increased compression on the patellofemoral joint in children with cerebral palsy.<sup>1)</sup> This is one of the well-known but not evidence-based rationales. Therefore, in this study, we hypothesized that flexion contracture of the knee joint is a risk factor of anterior knee pain. However, this study, which is the largest to date, showed contradicting results with statistical significance.<sup>2)</sup> Thus, the interpretation of the results may be controversial.

We agree that other methods can be used to assess flexion contracture of the knee joint, including assessment of quadriceps spasticity. We consider adding the assessment method as a risk factor of anterior knee pain in cerebral palsy patients in the future study design.

Thank you once again for your comment.

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1. Sheehan FT, Babushkina A, Alter KE. Kinematic determinants of anterior knee pain in cerebral palsy: a case-control study. *Arch Phys Med Rehabil.* 2012;93(8):1431-40.
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