ノーゲンの分解を防ぐ事により，胎盤の血管新生を促進し，流産を防いでいる可能性がある．

6. おわりに

前述したとおり，最近，第 XII 因子欠乏症などカリクレインーキニン系の蛋白の欠乏と反復流産との関係が報告されている．また，キニノーゲン依存性抗 PE 抗体や，抗第 XII 因子抗体など，カリクレインーキニン系蛋白に対する自己抗体と反復流産との関係も報告されている．カリクレインーキニン系は，妊娠維持に重要な役割を果たしていると考えられるので，その破綻は流産に直結する可能性がある．

カリクレインーキニン系の破綻による流産の特徴は，妊娠 10 週未満に起きる事である．現時点での治療は，低用量アスピリン療法やヘパリン療法などの抗凝固療法が挙げられる．しかしながら，最近筆者は，GAG，特にヘパリンが ELISA 中で劇的に抗 PE 抗体の抗体価を低下させる事を報告しており，ヘパリンの抗体中和作用または吸着作用が重要である可能性がある．さらにヘパリンは，カリクレインーキニン系，特にブラジキニンを介して血管新生，つまりは胎盤形成を促進するという報告もあり，直接胎盤に作用して流産を防止する可能性もある．ヘパリンは単に血液凝固系に作用するのみならず，妊娠維持に直接重要な役割を果たしている可能性がある．

Disclosure of Conflict of Interests

The author indicated no potential conflict of interest.

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