The diagnosis and management of acute knee injuries – decision making and recent advances
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With the increasing demand from competitive athletes and the rising recreational aspirations from the public, there is a definite change in the paradigm for managing athletic knee injury. There is a global change to enhance diagnostic criteria for knee injuries, primarily to ensure that serious injuries are recognized, such as haemarthrosis with the predominance of anterior cruciate ligament (ACL injuries), discrete meniscal tear and chondral lesions.

ACL injury is still a prime concern of the orthopaedic sports medicine community, with an increasing prevalence worldwide because of increasing popularity of sports such as soccer and skiing. In the female, there is also interesting observation that both anatomical and hormonal factors, pose a risk for female athletes. In adolescents, there is also increasing recognition of the incidence because of the popularity of contact and organized sports among this age group.

The ACL has always been regarded as the “watch-dog ligament” of the knee, as it controls the stability of the knee, in particular pivoting and turning. A knee with a damaged ACL is one of the significant factors leading to early retirement in the athletic career. The main aim of ACL reconstruction is to restore stability and enhance functional capability. Studies have shown that ACL reconstruction and stabilization will help protect the meniscus, and even articular cartilage, against further injury because of uncontrolled pivoting and turning.

The key to success of ACL reconstruction surgery depends on 4 parameters:
1) the strength of the graft
2) the appropriate positioning of the tunnels
3) stable fixation of the graft
4) concomitant surgical repair for articular cartilage and meniscal injury

Minimally invasive techniques should be used in almost every case of ACL reconstruction without opening up the knee joint. There are a lot of varieties of graft fixation, both in the femoral and tibial tunnel, depending on the site and type of graft used.

ACL rehabilitation is very important to ensure good functional outcome. At the moment, relatively little scientific basis on the exact mode which will produce the best results. There are still controversial areas, for example, the range of weight bearing, the need for continuous passive motion and the use of protective braces. In the rehabilitation arena, there are also topics open to debate on the specific muscle training
regarding their strength and endurance, the combination of use of close and open chain, and the modalities of muscle training, such as isometric, isotonic and isokinetics. One of the more recently recognized parameter in rehabilitation is to introduce early proprioceptive training to enhance the capability of the knee, but there are still problems in the quantitation of proprioceptive control which will need further research in order to realize the practical implication.

For the meniscal injury, the current golden standard is to preserve as much meniscal tissue as possible, hence there is an increasing trend to improve the surgical technique of meniscal repair, either through the conventional training technique or new generation of meniscal implant. Similarly, isolated chondral lesions are now useful to resurface the techniques with either mosaic party or chondrocyte transplant. It is an exciting new development for the coming era. Timely surgically intervention for the reparable lesion and also a comprehensive rehabilitation programme, this will enhance the functional recovery after athletic knee injury. With this team effort, we will be able to meet the demands from the sporting community.

References


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