**HIGH RESOLUTION DYNAMIC ULTRASOUND SCANNING DIAGNOSIS IN ACUTE KNEE INJURY**

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**HYPOTHESIS:**

Muscoloskeletal ultrasonography is a sufficient tool for preoperative decision making in acute knee injury.

**INTRODUCTION:**

Diagnosis in an acute swollen knee after trauma is usually performed by x-ray and or MRI. We conducted a study using ultrasound for additional imaging after plain X ray in acute knee injuries. Because of the low-cost and availability of US we started to use ultrasound in acute knee injury diagnosis.

**MATERIAL EN METHODS:**

In a two year period (2010-11) two orthopedic surgeons identified 55 patients with a acute knee injury with a mean of 2,9 weeks after trauma. All patients had a x-ray and US after clinical investigation.

Patients with isolated MCL injuries, muscle injuries or tendinopathy were treated conservatively . Patients with a mechanical extension loss or with US findings suggesting meniscal tears and loose bodies were treated with arthroscopy.

**RESULTS:**

55 patients were included .

25 patients were treated primary conservatively.

24 patients had no subsequent problems after a mean 11 months follow-up.

1 patient underwent arthroscopy, because of persistent pain.

In 30 patients arthroscopy was performed .

In 93% the US diagnosis was confirmed and in 7 % a solitary anterior cruciate ligament injury was found without meniscal damage.

Table 1 pre operative US findings vs. arthroscopy findings in acute knee injury.

|  |  |  |  |
| --- | --- | --- | --- |
| **Table 1** | **Scopy pos.** | **Scopy neg.** | **totaal** |
| **US pos.** | 28  | 2  | 30 |
| **US.neg.** | 1  | 24 \* | 25 |
| **Totaal** | 29  | 26 | 55 |

\* conservatively treated Group, mean follow-up 11 months

**Sensitivity**  **0,93**

**Specificity**  **0,96**

**Pos. predicted value** **0,97**

**Neg. predicted value**  **0,92**

**DISCUSSION:**

This preliminary study is needed to justify the next step of investigation which could be a blinded study in which the surgeon is not aware of the preoperative findings.

This could also be combined with a comparative study with MRI.

New techniques like power Doppler, 3D imaging and improved image quality is believed to produce even better results for sensibility and specificity.

Recent guidelines for preoperative imaging have focused to MRI imaging, which can be time consuming and expensive. Large cost reduction can be achieved if ultrasound imaging would be an alternative tool with comparable results and imaging quality.

**CONCLUSION:**

US is a valuable alternative tool to decide about the necessarily of a surgical procedure in acute knee injury. In our study the method was validated and deserves further research.

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