



Results from the ESSKA Survey on Prophylaxis for Heterotopic Ossification (HO) after Hip Arthroscopy

Introduction

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Heterotopic ossification (HO) is a condition in which unwanted and potentially disabling bone tissue forms in abnormal locations such as the muscles, musculotendinous junctions, and joint capsules. It may occur after trauma and surgery. Its occurrence is well documented around the elbow and hip following fracture surgery and total hip replacement. The number of hip arthroscopies performed has increased exponentially over the last decade [2], and HO has become well recognised following this procedure, being regularly present on post-operative radiographs (figure 1) [6]. Figure 2 shows an arthroscopic view of HO following a previous hip arthroscopy.



Figure 1. Heterotopic ossification following arthroscopic surgery of the hip

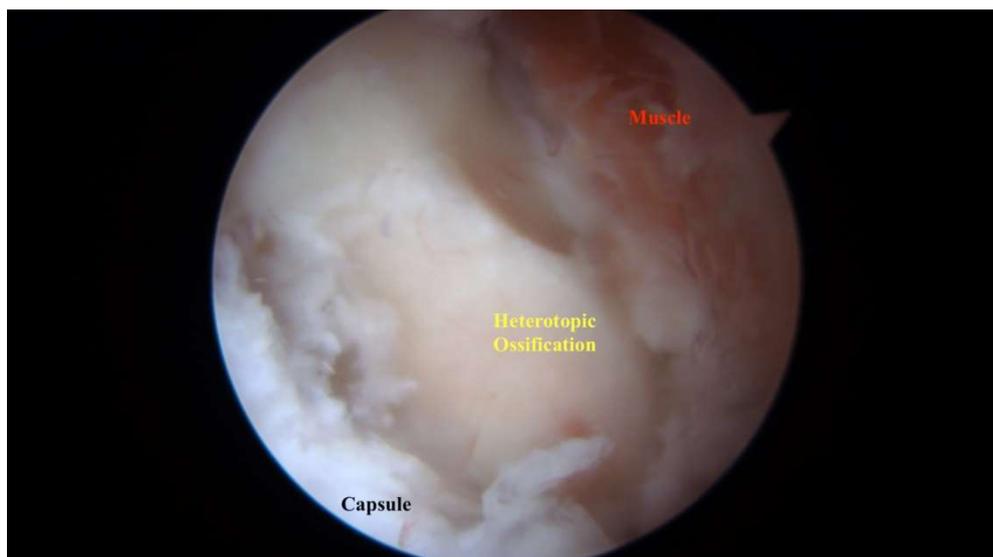


Figure 2. Arthroscopic view of heterotopic ossification.

Nonsteroidal anti-inflammatory drugs (NSAIDs) have been used to prevent HO for years in other settings and are also commonly used following hip arthroscopy (HA) [4]. A double blind randomized clinical study showed that NSAIDs reduced the prevalence of radiological HO compared to placebo [1]. However, NSAIDs may also cause serious complications, and knowledge about the side effects and associated risks is important. The clinical relevance of radiological HO remaining unknown, as most cases are not symptomatic, the use of NSAIDs with the purpose of preventing HO has been questioned [5].

Since no consensus exists on the use of NSAIDs as HO prophylaxis following HA, ESSKA's Hip Arthroscopy Committee decided to address this topic with a survey among ESSKA Members at large.

Material and Method

The survey was created by a group of experienced hip arthroscopists and pre-tested to ensure validity. It was composed of 14 questions:

- Four first questions were general on surgeons and their experience in Hip Arthroscopy;
- Seven questions were on NSAIDs habits for prescriptions, type, duration, risks factors and complications you are taking into account;
- Two questions were concerning HO encountered;
- The last question was about research and HO prophylaxis.

It was then e-mailed to the entire ESSKA Community, including friends of ESSKA on 1 June 2017.

Sixty-five responses from 32 different countries were received — about half of the respondents had six years or more experience with HA and 42% performed more than 50 HA procedures per year.

Results

45% of the participants used HO prophylaxis in all patients. 9 % did not use any HO prophylaxis. 12 % used HO prophylaxis in less than 10 % of their patients, 11 % in 10-50% of their patients, 22% in 50-75%. Among those who did not routinely perform HO prophylaxis, the following factors were considered important in the decision-making process:

- Previous HO or family history of HO,
- Genetic predisposition for HO,
- Longer/complicated HA.

One respondent used a combination of radiation therapy and oral pharmacological prophylaxis in combination and one used steroid injection at the end of the procedure. The rest of the respondents that used oral HO prophylaxis used pharmacological prophylaxis only.

100% of the participants using HO prophylaxis used oral pharmacological HO prophylaxis, including one participant adding radiation therapy. Most of these participants decided for themselves the medication, 6% seeking the advice of a medical or non-medical specialist.

42% used HO prophylaxis for 8 to 15 days, 38% for more than 15 days and 19% for less than 8 days. 56% agreed that the risk for complications affected their choice of HO prophylaxis while 23% disagreed. 20% were neutral. Among the risks of complications those that had the greatest impact on the choice of HO prophylaxis were: other drug related adverse events (63%), patient's compliance/wishes (52%), bleeding (35%), method of administration (16%), cost (15%), and other (3%).

When the participants were asked to estimate the rate of symptomatic HO in their practice, half of the respondents estimated the rate to be 0% or less than 1% and one third estimated the rate to be 1-5%. This estimation was reported to be unknown among 12% of the participants.

Finally, 43% agreed that there is sufficient research supporting HO prophylaxis in the literature and 32% disagreed while 25% were neutral.

Discussion

The estimated prevalence of HO by the respondents in their practices indicates that HO is not frequently a clinical problem. This is to be balanced by the fact that the majority are using HO prophylaxis in order to avoid this complication. Indeed, the most important finding in this survey is that the majority of the respondents are using oral pharmacological HO prophylaxis following HA in most of their patients.

The duration of HO prophylaxis varies among the respondents, which is not unexpected as there is little information in the literature. Nevertheless, it seems that 15 days could be a global agreement for the majority of the surgeons, being careful that there is no scientific data around that point.

NSAIDs may affect tissue healing. Healing of soft tissue to bone has been shown to be impaired by NSAIDs in experimental studies [3]. A negative effect of NSAIDs on the healing of the repaired labrum or capsule in HA may therefore be an issue. More than half the respondents considered potential side effects when deciding on HO prophylaxis as it is well established that NSAIDs have potential serious side effects (GI bleeding etc.). In this respect, it is actually surprising that 23% did not consider the risk of complications when deciding on the method of HO prophylaxis.

Limitations

Few respondents and a risk of responder bias make it difficult to draw any definite conclusions or generalise about the use of HO prophylaxis among hip arthroscopists from this survey.

Conclusion

Pharmacological HO prophylaxis seems to be commonly used following HA. Hopefully, our survey will help focus on this topic and contribute to interest in research in this field. Another related goal will be to achieve a consensus on recommendation for HO prophylaxis at the coming ESSKA Congress in Glasgow this year.

1. Beckmann JT, Wylie JD, Potter MQ, Maak TG, Greene TH, Aoki SK. (2015) Effect of Naproxen Prophylaxis on Heterotopic Ossification Following Hip Arthroscopy: A Double-Blind Randomized Placebo-Controlled Trial. *J Bone Joint Surg Am*; 16;97(24):2032-7.
2. Colvin AC, Harrast J, Harner C. (2012) Trends in hip arthroscopy. *J Bone Joint Surg Am.*;94(4):e23.
3. Dimmen S, Nordsletten L, Engebretsen L, Steen H, Madsen JE. (2009)The effect of parecoxib and indometacin on tendon-to-bone healing in a bone tunnel: an experimental study in rats. *J Bone Joint Surg Br.*;91(2):259–63.
4. Gupta A, Suarez-Ahedo C, Redmond JM, Gerhardt MB, Hanypsiak B, Stake CE, Finch NA, Domb BG. (2015) Best practices during hip arthroscopy: aggregate recommendations of high-volume surgeons. *Arthroscopy.* ;31(9):1722-7.
5. Miller GK. (2016) Editorial Commentary: The Efficacy of Nonsteroidal Anti-inflammatory Drugs for Prophylaxis of Heterotopic Ossification in Hip Arthroscopy--Do We Treat Patients or X-rays? *Arthroscopy.*;32(3):526-7.

6. Randelli F, Pierannunzii L, Banci L, Ragone V, Aliprandi A, Buly R. (2010) Heterotopic ossifications after arthroscopic management of femoroacetabular impingement: the role of NSAID prophylaxis. *J Orthop Traumatol.*;11(4):245–50.