3. Lifetime risk of malignancy in a patient with a genetic mutation or other risk factor is not relevant to our system. Our low-risk category (O-RADS 3; risk of malignancy, 1% to <10%) refers to the risk of a lesion being malignant on the basis of imaging features, not an individual's lifetime risk of developing a malignancy. We agree that a risk of malignancy ranging from 1% to less than 10% is not negligible. Many of these patients will be selected for a surgical procedure, but perhaps rather by minimally invasive access.

4. All study sites involved in the International Ovarian Tumor Analysis (IOTA) project are not high-risk referral populations. In IOTA phases 1–3, 12 of 24 centers are general hospitals and gynecology US departments not linked to a high-risk oncology department (4). Whereas specific risks in this surgical population may be elevated, we are confident that the ranges within the risk categories will not substantially change once validated on data from the IOTA phase 5 study in which 49% of patients with a newly diagnosed adnexal mass were deemed suitable for conservative management (5). We strongly believe that the O-RADS risk stratification shows great promise as an appropriate classification system for adnexal lesions in patients without acute symptoms although the management schemes may vary in those at high risk.

We look forward to future validation studies that include a broad patient population and a variety of observer skill levels.

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References

1. Kinkel K, Lu Y, Mehdizade A, Pelte MF, Hricak H. Indeterminate ovarian mass at US: incremental value of second imaging test for characterization--meta-analysis and Bayesian analysis. Radiology 2005;236(1):85–94.
2. Spencer JA, Ghattamaneni S. MR imaging of the sonographically indeterminate adnexal mass. Radiology 2010;256(3):677–694.
3. Maturen KE, Blaty AD, Wasnik AP, et al. Risk Stratification of Adnexal Cysts and Cystic Masses: Clinical Performance of Society of Radiologists in Ultrasound Guidelines. Radiology 2017;285(2):650–659.
4. Van Calster B, Van Hoorde K, Valentin L, et al. Evaluating the risk of ovarian cancer before surgery using the ADNEX model to differentiate between benign, borderline, early and advanced stage invasive, and secondary metastatic tumours: prospective multicentre diagnostic study. BMJ 2014;349:g5920.
5. Froyman W, Landolfo C, De Cock B, et al. Risk of complications in patients with conservatively managed ovarian tumours (IOTA5): a 2-year interim analysis of a multicentre, prospective, cohort study. Lancet Oncol 2019;20(3):448–458.

Intra-articular Corticosteroid Injections in the Hip and Knee: Perhaps Not as Dangerous as They Want You to Believe?

From
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We read with concern the October 2019 report in *Radiology* by Dr Kompel and colleagues, whose findings have been highlighted in the media as demonstrating a high rate of serious consequences of intra-articular corticosteroid (IACS) injections into the knee and hip (1). The most frequent complication, at 6%, accelerated knee osteoarthritis, is concerning given that IACS is widely used in practice and is considered effective and safe (2,3). Because sensationalizing medication complications can itself have adverse clinical consequences, the incidence rate of adverse events following IACS must derive from solid methods. Unfortunately, as a retrospective review of clinical data, the study by Dr Kompel and colleagues is inherently susceptible to biases (eg, indication and detection) that inflate estimates of occurrence. Aspects of their study that would generate such biases include reliance on clinically available imaging, nonsystematic case detection, incomplete follow-up, and (especially) inability to be sure that the outcomes of interest were not present prior to IACS. Incomplete information regarding these patient characteristics also prevents the generalization of their results.

Another reason to suspect an inflated adverse event rate is its discordance with controlled studies and clinical practice. Among more than 10 published IACS clinical trials (representing 818 patients and 2084 injections), including two 2-year trials (~140 patients) of repeated injections (4,5), none reported adverse joint event rates of this magnitude. One trial administered a knee IACS injection every 3 months for 2 years and performed systematic MRI surveillance for all the adverse events reported by Dr Kompel and colleagues, yet they did not detect a single one (5). Furthermore, expert panels from Osteoarthritis Research Society International and the American College of Rheumatology recently conducted separate reviews of the global literature by using systematic risk-benefit assessments, and both concluded that IACS is recommended for osteoarthritis treatment (2,3).

The study by Dr Kompel and colleagues is informative regarding the types of pathologic abnormalities observed among patients with joint pain undergoing joint injections. However, it does not allow inference of causality nor does it provide accurate measurements of the rate of occurrence of those complications. We need to be thoughtful about how such information is presented and disseminated to avoid excessive concerns about a treatment that most experts view as having a favorable balance of benefit versus harm when used appropriately.

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References

1. Kompel AJ, Roemer FW, Murakami AM, Diaz LE, Crema MD, Guermazi A. Intra-articular Corticosteroid Injections in the Hip and Knee: Perhaps Not as Safe as We Thought? Radiology 2019;293(3):656–663.
2. Bannuru RR, Osani MC, Vaysbrot EE, et al. OARSI guidelines for the non-surgical management of knee, hip, and polyarticular osteoarthritis. Osteoarthritis Cartilage 2019;27(11):1578–1589.
3. Kolasinski S. Non-Drug Interventions for Hip, Knee & Hand OA: 2019 Guideline Update. 2019 American College of Rheumatology Annual Meeting, Atlanta, GA.
4. Raynauld J-PP, Buckland-Wright C, Ward R, et al. Safety and efficacy of long-term intraarticular steroid injections in osteoarthritis of the knee: a randomized, double-blind, placebo-controlled trial. Arthritis Rheum 2003;48(2):370–377.
5. McAlindon TE, LaValley MP, Harvey WF, et al. Effect of Intra-articular Triamcinolone vs Saline on Knee Cartilage Volume and Pain in Patients With Knee Osteoarthritis: A Randomized Clinical Trial. JAMA 2017;317(19):1967–1975.