Clinical Gastroenterology and Hepatology

ORIGINAL ARTICLE HEPATOLOGY | VOLUME 20, ISSUE 12, P2800-2808, DECEMBER 01, 2022

Entecavir Prevents HBV Reactivation During Direct Acting Antivirals for HCV/HBV Dual Infection: A Randomized Trial

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Published: December 01, 2021 • DOI: https://doi.org/10.[illegible]16/j.cgh.2021.11.032 •

Background & Aims

A strategy to prevent hepatitis B virus (HBV) virologic reactivation (HBVr) and clinical reactivation (CR) during direct acting antiviral (DAA) treatment of hepatitis C virus (HCV)/HBV dual infection remains an unresolved issue.

Methods

Noncirrhotic patients with dual HCV/HBV infection were enrolled and allocated randomly to 1 of 3 groups as follows: 12 weeks of DAA alone (group 1), 12 weeks of DAA plus 12 weeks of entecavir (group 2), or 12 weeks of DAA plus 24 weeks of

weeks after initiation of DAA and persisted until the end of the study. During DAA treatment, HBVr occurred in 50% in group 1 vs 0% in group 2 and 0% in group 3 ($P < .001$), whereas the majority of HBVr in groups 2 and 3 occurred 12 weeks after cessation of entecavir (cumulative incidence, 93.8% in group 2 and 94.7% in group 3). Three patients (5.4%; 1 in each group) showed CR at week 48 and did not receive entecavir treatment.

Conclusions

Twelve weeks of entecavir is suggested to be co-administered with DAA for HCV/HBV dually infected patients.
ClinicalTrials.gov no: NCT04405011.

Gastroenterology

Log

BASIC AND TRANSLATIONAL - LIVER | ARTICLES IN PRESS

Molecular Markers of Response to Anti-PD1 Therapy in Advanced Hepatocellular Carcinoma

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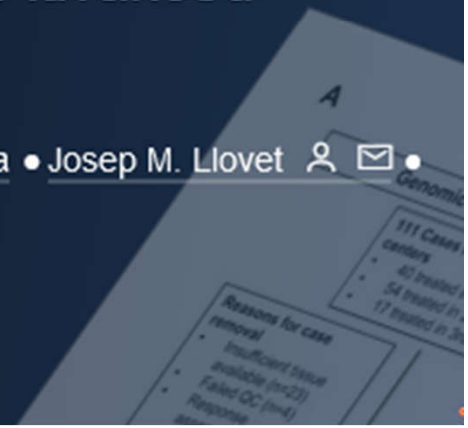
ed: September 11, 2022 • DOI: https://doi.org/10.1053/j.gastro.2022.09.005



Background & Aims

Single-agent anti-PD1 checkpoint inhibitors convey outstanding clinical benefits in a small fraction (~20%) of patients with advanced hepatocellular carcinoma (aHCC) but the molecular mechanisms determining response are unknown. To fill this gap, we herein analyze the molecular and immune traits of aHCC in patients treated with anti-PD1.

Methods

Overall, 111 tumor samples from patients with aHCC were obtained from 13 centers before systemic therapies. We performed molecular analysis and immune deconvolution using whole-genome expression data (n = 83), mutational analysis (n = 72), and histologic evaluation with an endpoint of objective response.

predicts response and survival in patients treated with anti-PD1 in frontline. The signature was validated in a separate cohort of aHCC and >240 patients with other solid cancer types where it also predicted response and survival. Of note, the same signature was unable to predict response in archival tissue of patients treated with frontline TKIs, highlighting the need for fresh biopsies before immunotherapy.

Conclusion

Interferon signaling and major histocompatibility complex–related genes are key molecular features of HCCs responding to anti-PD1. A novel 11-gene signature predicts response in frontline aHCC, but not in patients pretreated with TKIs. These results must be confirmed in prospective studies and highlights the need for biopsies before immunotherapy to identify biomarkers of response.

Noninvasive Prediction of Ki-67 Expression in Hepatocellular Carcinoma Using Machine Learning-Based Ultrasomics

A Multicenter Study

Linlin Zhang, MD, Shaobo Duan, MD, Qinghua Qi, MD, Qian Li, MD, Shanshan Ren, MD, Shunhua Liu, MD, Bing Mao, MD, Ye Zhang, MD, Simeng Wang, MD, Long Yang, MD, Ruiqing Liu, MD, Luwen Liu, MD, Yaqiong Li, MD, Na Li, MD, Lianzhong Zhang, MD

in hepatocellular carcinoma (HCC).

Methods—A total of 244 patients from three hospitals were retrospectively rec ruited (training dataset, n = 168; test dataset, n = 43; and validation dataset n = 33). Lesion segmentation of the ultrasound images was performed manually b two radiologists. In total, 1409 ultrasomics features were extracted. Feature selectio was conducted using the intra-class correlation coefficient, variance threshold, mutua information, and recursive feature elimination plus eXtreme Gradient Boosting. Th support vector machine was combined with the learning curve and grid searc parameter tuning to construct the clinical, ultrasomics, and combined models. Th predictive performance of the models was assessed using the area under the receive operating characteristic curve (AUC), sensitivity, specificity and accuracy.

Results—The ultrasomics model performed well on the training, test, and valida tion datasets. The AUC (95% confidence interval [CI]) for these datasets wer 0.955 (0.912–0.981), 0.861 (0.721–0.947), and 0.665 (0.480–0.819), respectively The combination of ultrasomics and clinical features significantly improved mode performance on all three datasets. The AUC (95% CI), sensitivity, specificity, an accuracy were 0.986 (0.955–0.998), 0.973, 0.840, and 0.869 on the training dataset

Objectives—To investigate the ability of ultrasomics to predict Ki-67 expression in hepatocellular carcinoma (HCC).

Methods—A total of 244 patients from three hospitals were retrospectively recruited (training dataset, n = 168; test dataset, n = 43; and validation dataset, n = 33). Lesion segmentation of the ultrasound images was performed manually by two radiologists. In total, 1409 ultrasomics features were extracted. Feature selection was conducted using the intra-class correlation coefficient, variance threshold, mutual information, and recursive feature elimination plus eXtreme Gradient Boosting. The support vector machine was combined with the learning curve and grid search parameter tuning to construct the clinical, ultrasomics, and combined models. The predictive performance of the models was assessed using the area under the receiver operating characteristic curve (AUC), sensitivity, specificity and accuracy.

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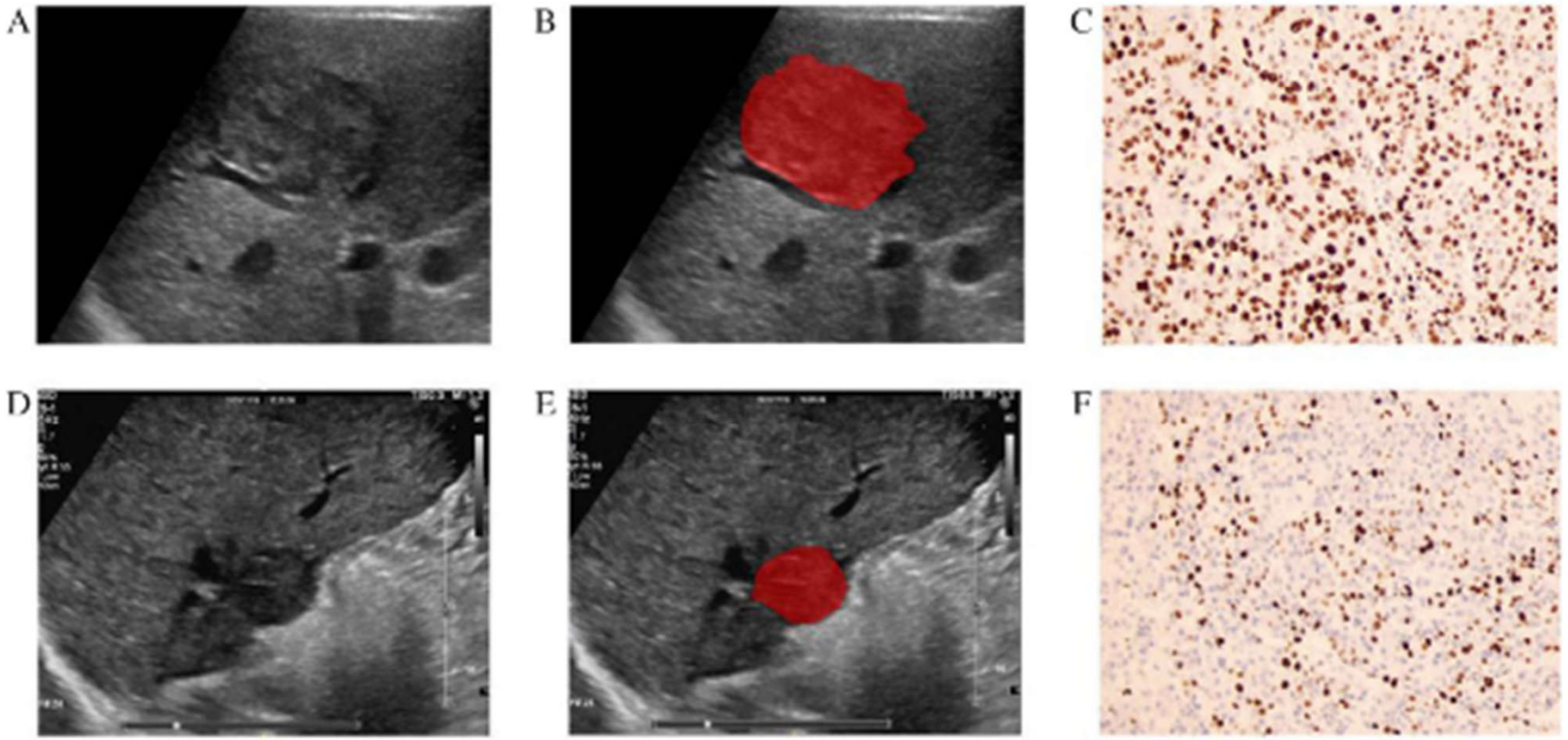
Conclusions—Ultrasomics was proved to be a potential noninvasive method to predict Ki-67 expression in HCC.

Key Words—hepatocellular carcinoma; Ki-67; machine learning; radiomics;

Figure 3. Representative images of lesion segmentation and corresponding pathological images of two HCC patients. Part figures (**A–C**) show the gray-scale ultrasound image, lesion segmentation image and Ki-67 expression pathological image of a 66-year-old male patient (70%); part figures (**D–F**) show the gray-scale ultrasound image, lesion segmentation image and Ki-67 expression pathological image of a 57-year-old male patient (5%).



assess the universality of the models. Therefore, our models may be more applicable.

The present study had some limitations. First, patient data were collected from three centers, and the sample size was small, especially affecting the independent validation dataset. Second, the study was retrospective, and the scan parameters varied among patients and scanners. Although our data were preprocessed before feature extraction, the impact of these confounding factors on the results was not eliminated. Third, Ki-67 levels were divided into—high and low—using the Ki-67 LI threshold of 10%, a common method reported in the literature. However, the optimal Ki-67 LI has not been established.

In conclusion, ultrasomics can successfully predict Ki-67 expression in HCC, thus improving the diagnosis and treatment of hepatocellular carcinoma.

NEWS RELEASE 22-NOV-2022

COVID-19 vaccine gives substantial protection against reinfection

Protection was greatest during the Delta wave, but decreased against the Omicron variant

CoV-2, the virus that causes COVID-19, still benefit from vaccination, gaining 60% to 94% protection against reinfection, depending on the variant. A new study led by Katrine Finderup Nielsen at Statens Serum Institut, Denmark, reports these findings November 22nd in the open access journal *PLOS Medicine*.

During the recent pandemic, vaccination has been one of the best tools available for curbing the spread of COVID-19. People infected with the virus are known to develop long-lasting natural immunity, but Finderup Nielsen and her team wanted to know whether these individuals would still benefit from receiving the vaccine. The team analyzed infection and vaccination data from nationwide Danish registers that included all

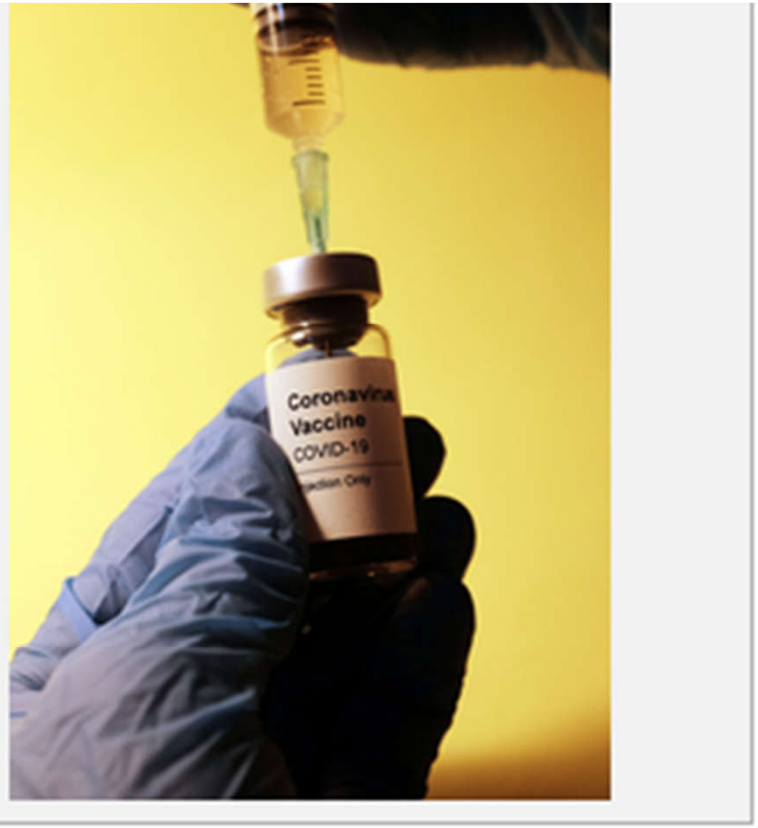


IMAGE: RESEARCHERS FIND SIGNIFICANT VACCINE EFFECTIVENESS AGAINST SARS-COV-2 REINFECTION. view more ›

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Ultrasound may not be needed for women with fatty breast density

By Amerigo Allegretto, AuntMinnie.com staff writer

November 21, 2022 --

Monday, November 28 | 1:30 p.m.-2:30 p.m. | M6-SSBR04-5 | E451A

Here, research findings will show that ultrasound may not be needed to help detect breast cancer in women with fatty breast density.

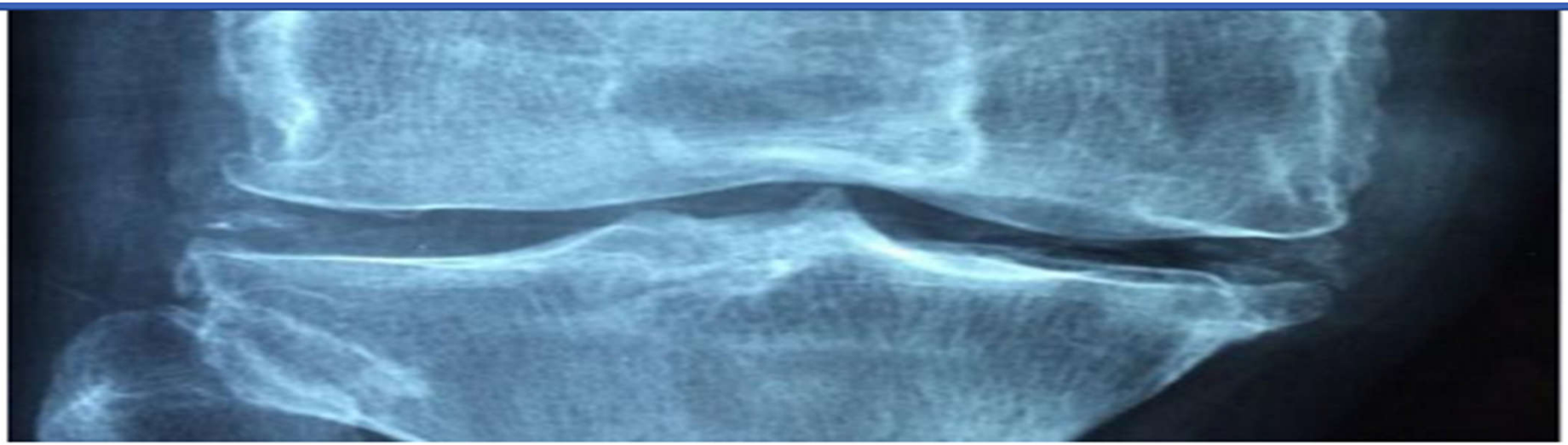
Dr. Grace Lin from Kaiser Permanente in California will present her team's research, which explored whether diagnostic mammograms alone or the combination of mammography and ultrasound are better for examining women in this density category. For the study, researchers were blinded to the outcome and performed a retrospective review of the clinical history, diagnostic mammogram, and ultrasound exam in 2,066 women with 2,149 palpable lumps.

Out of these, 1,486 women (72%) had no mammographic correlate. The team detected a total of 136 cancers, with just one being found on ultrasound without a mammographic correlate. Lin and colleagues wrote that this means the cancer risk/negative predictive value/negative predictive value is 1/1,486 (0.07%) for using mammography alone in these patients.

Authors wrote that taking ultrasound out of the equation for women in the fatty breast category would yield benefits.

"Eliminating ultrasound from routine work-up of lumps in women with fatty breasts with no mammographic correlate would expedite care, increase access for other patients, and decrease healthcare costs," they wrote.

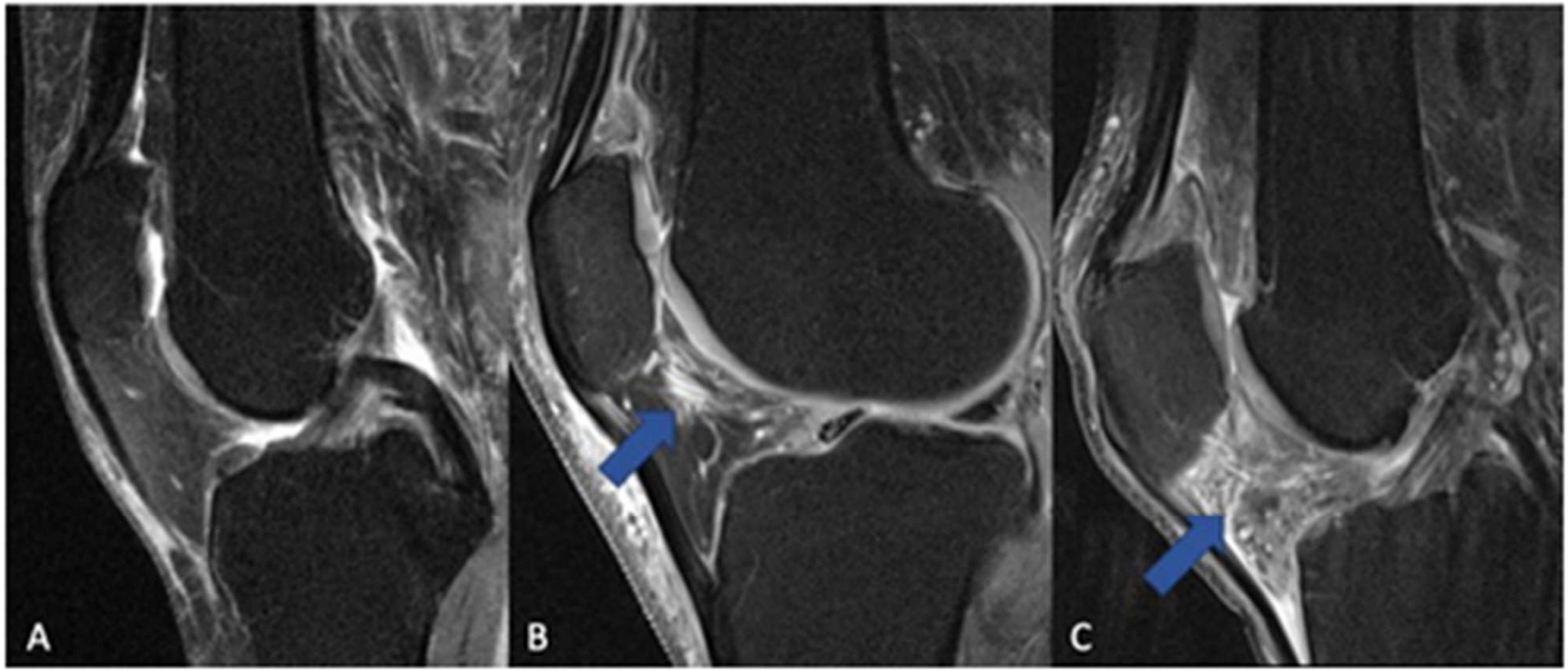
To see more results, please attend this Monday presentation.



Use of NSAIDs 'should be revisited' after study reveals they may worsen arthritis

The use of NSAIDS such as ibuprofen and naproxen might not have the desired effect patients are seeking when it comes to joint pain, according to new findings to be presented at RSNA 2022

id four years later.



The fat pad adjacent to the kneecap (Hoffa's fat pad, infrapatellar fat pad) can change in signal on MRI when the knee is inflamed. (A) Normal knee without signs of inflammation. (B) Arrow pointing on a circumscribed area with higher signal (bright lines) in the area of the fat pad (normally dark), which is indicative of a beginning inflammatory reaction. (C) The whole fat pad has a higher signal (light grey color with white lines), which is a sign of progressive inflammation of the knee joint. Image and caption courtesy of the RSNA.

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NEWS

RSNA Press Release

NSAIDs May Worsen Arthritis Inflammation

Released: November 21, 2022

CHICAGO — Taking anti-inflammatory pain relievers like ibuprofen and naproxen for osteoarthritis may worsen inflammation in the knee joint over time, according to a new study being presented next week at the annual meeting of the Radiological Society of North America (RSNA).

At A Glance

- Long-term NSAID use for osteoarthritis of the knee may worsen inflammation of the joint.
- Joint inflammation and

Osteoarthritis is the most common form of arthritis, affecting more than 32 million adults in the U.S. and more than 500 million people worldwide. It occurs most frequently in the hands, hips and knees. In people with osteoarthritis, the cartilage that cushions the joint gradually wears away. Arthritis is often accompanied by inflammation, or swelling, of the joint, which can be painful.

Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly prescribed for osteoarthritis pain and inflammation. But little is known of the long-term effects of these drugs on disease progression.

“To date, no curative therapy has been approved to cure or reduce the progression of knee osteoarthritis,” said the study’s lead author, Johanna Luitjens, M.D., postdoctoral scholar in

the Department of Radiology and Biomedical Imaging at the University of California, San Francisco. "NSAIDs are frequently used to treat pain, but it is still an open discussion of how NSAID use influences outcomes for osteoarthritis patients. In particular, the impact of NSAIDs on synovitis, or the inflammation of the membrane lining the joint, has never been analyzed using MRI-based structural biomarkers."

Dr. Luitjens and colleagues set out to analyze the association between NSAID use and synovitis in patients with osteoarthritis of the knee and to assess how treatment with NSAIDs affects joint structure over time.

"Synovitis mediates development and progression of osteoarthritis and may be a therapeutic target," Dr. Luitjens said. "Therefore, the goal of our study was to analyze whether NSAID treatment influences the development or progression of synovitis and to investigate whether cartilage imaging biomarkers, which reflect changes in osteoarthritis, are impacted by NSAID treatment."

For the study, 277 participants from the Osteoarthritis Initiative cohort with moderate to severe osteoarthritis and sustained NSAID treatment for at least one year between baseline and four-year follow-up were included in the study and compared with a group of 793

anti-inflammatory function has been frequently propagated in patients with osteoarthritis in recent years and should be revisited, since a positive impact on joint inflammation could not be demonstrated."

According to Dr. Luitjens, there are several possible reasons why NSAID use increases synovitis.

"On the one hand, the anti-inflammatory effect that normally comes from NSAIDs may not effectively prevent synovitis, with progressive degenerative change resulting in worsening of synovitis over time," she said. "On the other hand, patients who have synovitis and are taking pain-relieving medications may be physically more active due to pain relief, which could potentially lead to worsening of synovitis, although we adjusted for physical activity in our model."

Dr. Luitjens noted that prospective, randomized studies should be performed in the future to provide conclusive evidence of the anti-inflammatory impact of NSAIDs.

Co-authors are Charles McCulloch, Ph.D., Thomas Link, M.D., Ph.D., Felix Gassert, M.D., Gabby Joseph, Ph.D., and John Lynch, Ph.D.

THE END