Caffeine Posited to Enhance Psoriasis Tx Response

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PHILADELPHIA — Patients with psoriasis who drink coffee frequently respond better to treatment with methotrexate and sulfasalazine, Dr. Yolanda Helfrich reported at the annual meeting of the Society for Investigative Dermatology.

That should be good news for patients who like to drink coffee, said Dr. Helfrich of the department of dermatology, University of Michigan, Ann Arbor. The impact of coffee and other caffeine-containing beverages on inflammatory conditions such as psoriasis has been the subject of controversy for some time. Many people consider caffeine to be proinflammatory and have suggested that patients with inflammatory diseases cut their consumption.

On face value, one would expect coffee to thwart the efficacy of drugs such as methotrexate (MTX) and sulfasalazine (SSZ). "Both of these drugs are anti-inflammatory, and they work by inhibiting an enzyme called 5-amidoimidazole-4-carboxamide ribonucleotide (AICAR) transformylase, resulting in AICAR accumulation. This leads to increased adenosine which has anti-inflammatory properties," explained Dr. Helfrich. "Caffeine acts as an adenosine receptor antagonist, so you'd expect it to inhibit MTX and SSZ."

Indeed, a study published several years ago involving 91 patients with rheumatoid arthritis showed that regular coffee drinkers were more likely to discontinue MTX therapy due to perceived lack of efficacy. A second rheumatoid arthritis study involving 39 patients also showed inhibition of the drug's effects, but other published studies show no such effects.

But it appears that, at least biochemically, coffee has bivalent effects. While it is true that caffeine is an adenosine receptor antagonist, it also increases cyclic adenosine monophosphate, (cAMP) which has antiproliferative and immunosuppressive effects. It also simultaneously reduces the production of tumor necrosis factor–α (TNF-α), which is high in psoriasis. Presumably, both of these changes would be beneficial to patients with psoriasis. "We wondered which effect would be more important: the receptor antagonism or the TNF-α reduction and cAMP increase."

Dr. Helfrich and her colleagues surveyed 21 patients with moderate to severe psoriasis who received MTX and SSZ. The patients were asked to rate the efficacy of the drug therapies on a 1-10 scale, with 1 representing "not effective" and 10 representing "highly effective." Among other questions regarding their lifestyles, the patients were asked to estimate their weekly coffee consumption.

Plotting coffee consumption against treatment rating scores, the investigators found a weak but statistically significant correlation between coffee drinking and improved efficacy as perceived by the patients. Those who drank 10 or more cups of coffee each week had a mean 1-point improvement in treatment rating scores, compared with those who drank less. When the researchers looked at the data through a linear regression model that controlled for gender, duration of psoriasis, drug doses, and years of drug therapy, they found a much more robust correlation.

Dr. Helfrich acknowledged the limitations of this study—mainly the small population size and the exclusive reliance on patient self-reporting—for the drug efficacy data and for the estimates of caffeine intake. She also recognized the possibility that the perk-up patients experience from drinking coffee could be giving them an overall sense of well-being that colored their perception of the therapeutic efficacy. "Caffeine is an addictive drug and most addictive drugs increase endorphins, which makes us feel better. So this is an open question. We do need to do a study with investigator assessment of the drug efficacy," she said.

That said, she noted that there is reason to think that the observation represents an objective phenomenon. "In psoriasis, the longer-term anti-inflammatory effects of increasing the adenosine receptors, increasing cAMP and reducing TNF outweigh the acute proinflammatory effects of caffeine."

Dr. Helfrich said she believes the observed effect of coffee is due to the caffeine, so presumably other caffeinated beverages would have similar impact, but this remains to be determined by future research.

In the meantime, it seems there is no reason to counsel coffee-loving MTX/SSZ-treated psoriasis patients against making routine trips to their local coffeehouses. ■