processed in triplicate and verified by sequencing with GAPDH as the internal standard. Expression of mRNA was calculated by the delta threshold cycle. P<.05 (2-tailed, Mann-Whitney test), was considered significant.

Results. Retinoic acid receptor α, RARβ, RARγ, and RARβ2,4 amplified in 28 of 28 BCC samples and 22 of 22 SCC samples; RARB1 in 27 of 28 BCCs and 22 of 22 SCC; and RARB1γ in 24 of 28 BCC and 2 of 22 SCC. Quantitatively, RARα was 3.46-fold increased (P=.001); RARγ, 1.63-fold increased (P=.001); and RARB1γ, 23.73-fold increased in BCCs compared with SCCs (P=.03) (Figure 1 and Figure 2), but only 2 SCCs showed amplification for RARB1γ. The findings for RARB, RARB1, and RARB2,4 were indistinct.

Comment. Based on the different retinoid sensitivity of BCC and SCC, we expected RAR isoform differences. Interestingly, only 2 of 22 SCCs expressed RARB1γ at a much lower level than BCCs (9%). In contrast to lung cancer, RARB1γ does not seem to be pivotal for retinoid chemoprevention in SCC. Levels of RARα and RARγ were higher in BCC than in SCC, which fits with reported RAR and retinoid X receptor (RXR) isoform expression.2

Other factors may mediate chemoprevention. Acitretin binds with low affinity to RARs but with high affinity to cellular retinoic acid binding proteins (CRABPs). Acitretin shifts the distribution of endogenous tretinoin from CRABPs to RXR-RXR heterocomplexes, potentiating its effect. Tazarotene specifically activates RARB and RARγ and only weakly activates RARα with chemopreventive effect on BCC in Pch1± mice.3 In human lung cancer, RARB4 seems carcinogenic.4 Differential activation of RAR isoforms may therefore have carcinogenic or anticarcinogenic effects as shown by the relative superiority of tazarotene in BCC over other retinoid-related compounds with simultaneous RARα and RARB1 isoform activation.3

In summary, RAR isoform mRNA expression differs between BCC and SCC. Unlike in lung cancer, the mRNA levels of the recently reported isoform RARB1γ do not explain SCC retinoid sensitivity. Rather, we assume, the relative sensitivity to retinoid treatment of SCC vs BCC is mediated by differential RAR activation or indirect effects such as shifting endogenous retinoids from CRABPs to RAR-RXR heterocomplexes.

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Teledermatology From a Combat Zone

Historically, dermatologic conditions account for between 15% and 75% of all outpatient visits in the combat environment during wartime.1 Tele-dermatology has proven to be an effective adjunct to extend dermatologic services to remote locations.2,3 Since July 2004, the US Army has operated a store-and-forward tele-dermatology consult service for deployed medical providers. This service is responsible for a substantial number of consults and enhances the care of deployed service members worldwide. Herein, we outline the uniqueness of this program and evaluate the cost savings.

Methods. We reviewed store-and-forward teledermatology consults that military health care providers generated between January 2005 and January 2009 while deployed with the US Army. Deployed health care providers
who needed a dermatology consult took digital photographs and e-mailed them along with a brief history to a single e-mail address at a monitored server. The e-mails were then distributed to the on-call consulting dermatologists. More than 40 military dermatologists answered the consults on a rotating basis in a “team call” approach. The percentage of total consults and diagnostic agreement between primary care provider and dermatologist were calculated. In addition, the number of other comments by the call team was determined.

For the cost calculation, intertheater transfer of a patient to be evaluated by a dermatologist in Iraq was estimated to be $4000, while the cost of evacuation to the United States was estimated to be $14,082 (including the cost of lost duty days, ground transportation, airlift via helicopters and other aircraft, extra personnel required for security and transportation crews, and housing of patients during their evaluation and treatment).4

Results. A total of 2197 consults generated between January 2003 and January 2009 were reviewed. The most prevalent diagnoses by the consultant dermatologists were eczema (13%, n = 283), fungal infection (7%, n = 153), and bacterial infection (7%, n = 152). There was a 34.4% diagnostic agreement between the provisional diagnosis of the primary health care provider and the teledermatology consultant. The most common diagnoses that the referring health care providers were able to correctly identify were smallpox vaccination reactions (59%) and leishmaniasis (75%). In total, 75.3% of the consults could be answered with a single definitive diagnosis by the dermatologist (n = 1655), and 24.7% of the consults were answered with a differential diagnosis (n = 542). Additional comments were provided in 18% of the single definitive diagnosis group (n = 297) and 73% of the differential diagnosis group (n = 395). A total of 1.4% of the consults recommended evacuation back to the United States (n = 40), for an estimated cost of $562,380; 4.7% of patients were referred for evacuation back to the United States (n = 40), for an estimated cost of $416,000 for a cost of approximately $416,000.

Comment. Historically, primary health care providers provide most of the dermatologic care in a wartime environment.1 Dermatologists in the military remain in short supply. Because of the high demand and low availability of dermatologists, teledermatology is an excellent specialist extender that allows worldwide access to dermatology consults.3 Currently, dermatology accounts for 31% of all telemedicine consults initiated by the US Army’s teledermatology consult service.5 One of the unique features of this program is that all of the dermatologists on the call team see the original question and response. Once the consult has been answered, the other members of the team are free to reply to the on-call dermatologist with additional thoughts. The original consultant then compiles the secondary comments and forwards these to the originating provider. This allows for an “instant quality control” aspect to this system. More additional comments were received when the on-call dermatologist replied with a differential diagnosis than when the reply specified a single definitive diagnosis.

A total of 2157 patients could be managed in Iraq, which is an overall cost savings of approximately 30.4 million dollars. One additional benefit of teledermatology in the combat setting is the incalculable savings of avoiding the risk of travel in a war zone.

This study demonstrates the role and cost savings of teledermatology in the combat setting. Dermatologic conditions remain a common complaint among deployed soldiers, and teledermatology can substantially reduce the number of patients who need to be evacuated for treatment, resulting in substantial cost savings.

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A Potential Association Between Alopecia Areata and Narcolepsy

To our knowledge, narcolepsy was first associated with alopecia areata (AA) in the Spanish-language literature in 1992.1 The author described 2 patients with alopecia universalis and 1 with AA who subsequently developed symptoms suggestive of narcolepsy. In all 3 cases, the diagnosis of narcolepsy was made.