Predicting Reduction in Lost Productivity and Indirect Costs Among Patients With Atopic Dermatitis Treated With Ruxolitinib Cream

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Atopic dermatitis (AD) is a chronic, inflammatory skin disease characterized by itching, dryness, and redness with a prevalence of approximately 10% to 15% in children and 5% to 10% in adults in the United States. Patients with AD, as well as caregivers, incur substantial indirect costs based on missed days or lost productivity at work. Thus, there is an unmet need for effective, well-tolerated therapies. In two phase 3 studies (TRuE-AD1 [NCT03745638] and TRuE-AD2 [NCT03745651]), patients who applied ruxolitinib cream, a topical selective inhibitor of Janus kinase (JAK) 1 and JAK2 in development for the treatment of AD, reported greater improvements in daily activities and work productivity using the Work Productivity and Activity Impairment (WPAI) questionnaire vs vehicle over 8 weeks of treatment. Overall work impairment from the WPAI questionnaire in the TRuE-AD1 and TRuE-AD2 studies was used to construct an economic model of lost productivity using a human capital approach. This model estimated the annual cost of lost productivity due to AD as well as the incremental cost savings to an employer with the use of ruxolitinib cream vs vehicle cream for the treatment of AD. The proportion of time with overall work impairment was combined with epidemiologic data on prevalence and employment status among patients with AD (assuming 79% and 21% of employed patients are employed full time and part time, respectively [Andersen L, et al. *Br J Dermatol.* 2020;182(4):1007-1016]) and median weekly income for full- and part-time workers from the US Bureau of Labor Statistics (full-time: $968 for men and $843 for women; part-time: $375 for men and $356 for women). Patients from the 2 studies had a median age of 32 years, and 61.7% were female. Data were extrapolated to 52 weeks by calculating the indirect cost per 2-week increments over the 8-week trial period, then applying the overall work impairment at 8 weeks for the remaining 44 weeks of the year. Results are presented for a single employed patient with AD and also for an employer-sponsored health plan in the United States (assuming 0.82% of participants with AD [Clark R, et al. *J Med Econ*. 2018;21(8):770-777], 54.5% employed [Andersen L, et al. *Br J Dermatol.* 2020;182(4):1007-1016], and 59.0% treated [Clark R, et al. *J Med Econ*. 2018;21(8):770-777]). At baseline, patients who applied twice-daily 0.75% ruxolitinib cream, 1.5% ruxolitinib cream, and vehicle cream had overall work impairment of 33.6%, 31.8%, and 36.4%, respectively. Work impairment was reduced in patients who

applied 0.75%/1.5% ruxolitinib cream vs vehicle at Week 2 (18.0%/17.8% vs 32.4%), Week 4 (16.8%/14.7% vs 29.4%), and Week 8 (14.3%/15.5% vs 31.0%). Total indirect costs incurred during this 8-week period were $1313/$1243 vs $2008 for 0.75%/1.5% ruxolitinib cream vs vehicle, respectively. Compared with a patient receiving vehicle, incremental annual indirect cost savings for a patient receiving 0.75% or 1.5% ruxolitinib cream were $5301 and $4226, respectively. Using these per patient indirect cost savings amounts, the incremental annual indirect cost savings were approximately $14 million and $11 million for a 1,000,000-member health plan if patients were treated with 0.75% ruxolitinib cream or 1.5% ruxolitinib cream, respectively, compared with vehicle. In summary, the results of this model show that use of ruxolitinib cream is estimated to substantially reduce indirect cost burden on the patient and the payer.

Author Disclosures

LB and KM-W are employees of Curta Inc. and served as paid consultants to Incyte Corporation in connection with this study.
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VNJ, MEK, and JHL are employees and shareholders of Incyte Corporation.
SDS is an owner of VeriTech Corporation and served as a consultant to Incyte Corporation in connection with this study.