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Chronic lymphocytic leukemia and Chronic Lymphoproliferative Disorders

# ASSESSMENT BY HIGH RESOLUTION ULTRASOUND SONOGRAPHY OF PATIENTS WITH CHRONIC LYMPHOCYTIC LEUKEMIA TREATED WITH BTK INHIBITORS (BTKI) CLINICAL AND PHARMACOECONOMIC IMPACT

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**Introduction:** IWCC and ESMO guidelines suggest abdominal ultrasound (US) and superficial lymphonodes (SLN) palpation to assess CLL patients in general practice(GP). The CLL expert Tuscany panel included SLN US in general practice (doi10.1007/s10238-023-01244-5). SLN US assessment in CLL patients has been previously published and CLL SLN US-characteristics have been described (doi: 10.3390/jcm11113206). According to IWCC and ESMO guidelines, progressive lymphoadenopathy or splenomegaly are a sign of active disease. O'Brien et al. reported that lymphonodes dimensions have an impact on response to Ibrutinib (doi 10.1182/blood-2017-10-810044).

**Methods:** We present here a procedure model in which the US methodology previously published (doi10.1007/s10238-023-01244-5; doi: 10.3390/jcm11113206) was applied to determine the potential clinical benefit and the pharmacoeconomic impact, of treatment decision in multiple clinical scenarios. According to the IWCC and ESMO guidelines we defined positive a correct CLL treatment at the correct timing, or negative when the timing of the treatment is incorrect. We applied the US vs palpation of SLN assessment previously described (doi: 10.3390/jcm11113206) to different clinical scenarios of CLL patients who might initiate a BTKi treatment (scenario 1) or are on a BTKi treatment (scenario 2). Scenario 1a: if patients are treated too early there is not a clinical benefit and the pharmacoeconomic impact is negative. Scenario 1b: if patients are treated too late with BTKi there is not a clinical benefit and the pharmacoeconomic impact is negative. In this scenario the treatment response and duration is expected to be sub-optimal, with an expected earlier second line treatment. Scenario 2 patients have initiated a BTKi treatment. Scenario 2a: If patients are responsive with a complete or partial remission the clinical benefit is positive and the pharmacoeconomic impact is positive. Scenario 2b: if patients' response to BTKi is erroneously considered in progressive disease, with a switch to a second line treatment, the clinical benefit is negative and the pharmacoeconomic impact is negative.

**Conclusions:** US was previously shown to be more accurate over palpation to identify CLL SLN (doi: 10.3390/jcm11113206). Both the timing of initial BTKi treatment and the correct assessment of response to a BTKi is crucial for a positive clinical benefit and a positive pharmacoeconomic impact. Ultrasound sonography of SLN is a useful tool in general practice to assess CLL patients and help to reach a clinical benefit with a positive pharmacoeconomic impact.