



COST-MINIMIZATION ANALYSIS OF RITUXIMAB SUBCUTANEOUS INJECTION FOR NON-HODGKIN'S LYMPHOMA IN THE REPUBLIC OF MACEDONIA

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BACKGROUND

Rituximab is a monoclonal antibody that targets the CD20 surface antigen, expressed on normal B-cells and almost all B-cell lymphomas. A new subcutaneous injection of rituximab is licensed for treating non-Hodgkin's lymphoma (NHL) in adults including those with previously untreated stage III-IV follicular lymphoma in combination with chemotherapy, follicular lymphoma that responded to induction therapy, CD20-positive diffuse large B-cell non-Hodgkin's lymphoma in combination with CHOP (cyclophosphamide, doxorubicin, vincristine, prednisolone) chemotherapy. Phase III, randomised, non-inferiority, open-label SABRINA study demonstrated therapeutic and pharmacokinetic non-inferiority of rituximab subcutaneous (SC) to rituximab intravenous (IV). Published data from time and motion studies found that administration of subcutaneous rituximab was associated with savings in healthcare professional time and costs compared with intravenous rituximab.

AIM OF STUDY

To identify and compare the all costs related to preparing and administrating rituximab for the intravenous and subcutaneous formulation in Macedonian NHL patients.

MATERIAL and METHODS

A cost-minimization analysis was used to determine the economic impact from a hospital perspective of the direct treatment costs for the two regimens of the use of SC and IV administration of rituximab in the treatment of NHL patients. The total of 220 NHL patients (mean body surface area 1.9 m², middle aged 59.6 years) were enrolled in the study. Evaluated healthcare resources included drug treatment costs, infusion chair occupying cost, active Healthcare Professional time cost and consumable disposals.

Table 1. Characteristics of NHL patients enrolled in study

No of patients	220 patients
Age	59,6 y (CI: 57,9071 - 61,3297)
Body Surface Area	1,9 (CI: 7505 - 2,0615)
City	26, 40% Skopje
Most common diagnosis	Diffuse large B-cell lymphoma (DLBCL), not otherwise specified
First line treatment	210 patients
First line followed by maintenance therapy	32 patients
Second line treatment	12 patients / 2TO



RESULTS

Direct costs of administering one course of rituximab, including cost of drug, cost of administration and cost of consumables in all treatment phases (premedication, medication and post medication), for intravenous administration of rituximab were 1621€ compared to 1546€ for subcutaneous administration of rituximab. Average time for intravenous administration is 6 hours, 12 minutes and 13 seconds, compared to 10 minutes and 13 seconds for subcutaneous administration. Subcutaneous rituximab incurred less non-drug related costs than intravenous rituximab under the observed clinical practice: 14.62€ vs. 1.76€ regarding active healthcare professional time and 10.10€ vs. 1.2€ as infusion chair occupying cost.

Table 2. Referent price of Rituximab in Republic of Macedonia

IV Mabtera (rituximab) 100 mg	28.670 den	→ 99.384 den
IV Mabtera (rituximab) 500 mg	70.714,85 den	
SC Mabtera (rituximab) 1400 mg	95. 015,5 den	

Table 3. Total accumulated cost (den) per patient over the full course of treatment with SC and IV Rituximab

	IV	SC
Cost of premedication with consumables	102,35 den/patient	102,35 den/patient
Cost of administration of therapy	197,54 den/patient	11,87 den/patient
Post medication	35,2 den/patient	0 den/patient
TOTAL	335,09 den/patient	114,22 den/patient

Table 4. Total accumulated time per patient over the full course of treatment with SC and IV Rituximab

	IV	SC
Premedication	~ 2 min and 13 sec + 30 min	~ 2 min and 13 sec + 30 min
Therapy	4 hours and 40 min	~ 8 min
Postmedication	90 min	0 min
TOTAL	6 hours, 42 min, 13 sec	~ 10 min 13 sec + 30 min

Table 5. Total accumulated cost (den) of health workers during the full course of treatment with SC and IV

	IV	SC
Premedication	5,76 den	86,75 den
Therapy	650 den /patient/4 hours (26000/40 h. per week)	~ 21,6 den
Post medication	243,75 den /patient (26000/40 h. per week)	0 h den
TOTAL	899,51 den/patient (26000/40 h. per week)	~ 108,35 den

CONCLUSION:

Subcutaneous administration of rituximab is a cost-saving therapy in comparison with intravenous administration of rituximab for the treatment of NHL patients in the Republic of Macedonia.