patients with locally advanced or metastatic RCC is not well-defined; largest studies to identified the duration of therapy, the timing of surgery and the selection of patients who may benefit from neoadjuvant therapy are needed.

1 Hudes G, carducci M, Tomczak P *et al*: Temsirolimus, Interferon alfa, or both for advanced renal-cell carcinoma. N Engl J Med *356*: 2271-2281, 2007.
2 Zini L, Capitanio U, Perrotte P *et al*: Population-based assessment of survival after cytoreductive nephrectomy *versus* no surgery in patients with metastatic renal cell carcinoma. Urology *73*: 342-346, 2009.
3 Abel EJ, Culp SH, Tannir NM *et al*: Primary tumor response to targeted agents in patients with metastatic renal cell carcinoma. Eur Urol *59*: 10-15, 2011.

32

PATIENT'S COMPLIANCE TO BCG. DO WE ADEQUATELY CONSIDER IT?

Cristina Scalici Gesolfo[1], Vincenzo Serretta[1], Vincenza Alonge[1], Sofia Gattuso[1], Giuseppe Carità[1], Lorenzo Rocchini[2], Marco Moschini[3], Renzo Colombo[3]

[1]Institute of Urology, Department of Surgical, Oncological and Stomatological Sciences, University of Palermo;
[2]Department of Urology, University "Vita-Salute" San Raffaele, Milan;
[3]Division of Urology, University "Vita-Salute" San Raffaele, Milan, Italy

Introduction: Several studies and meta-analysis demonstrated that BCG is the best treatment for conservative management of high-risk NMI-BC with a net benefit in terms of both recurrence-free and progression-free survival (1, 2). Maintenance lasting minimum one year is recommended. In spite of the effectiveness, the amount of patients who complete the manteinance schedule does not exceed 50% (3). The reasons of BCG maintenance interruption remain still unclear. The aim of our study was to investigate the causes of low adherence to 1-year full dose maintenance BCG in a large series. *Patients and Methods:* The clinical files of consecutive patients affected by T1 HG NMI-BC and undergoing adjuvant BCG for one year, between 2000 and 2012, were reviewed. Main exclusion criteria were presence of Tis, previous T1 HG, number of tumors more than 3 and diameter greater than 3 cm, genitourinary tract infections or other disease potentially impacting tolerability and compliance to BCG. One-year BCG maintenance was scheduled according to the South West Oncology Group (SWOG) including 3 weekly instillations at 3, 6 and 12 months starting 21-40 days after TUR. No dose reduction was considered. Both local and systemic side effects and any reason of treatment suspension were recorded. BCG tollerability was classified in four grades: 0. no need of postponement, 1. one-week postponement, 2. two-week postponement, 3. one single instillation omitted, 4. definitive stop. *Results:* The files of 545 consecutive patients with HG NMI-BC, selected for conservative management at two tertiary referral centers were reviewed. Out of them, 411 patients (75.4%) satisfied the inclusion criteria. The induction cycle was completed and suspended by 380 (92.5%) and 31 (7.5%) patients respectively. Suspension was due to toxicity in 20 (4.8%) and to no toxicity-related reasons in 11 (2.6%) patients. Maintenance was initiated by 308 (74.9%) patients while 72 (17.5%) never started. Particularly, 32 (8.4%) patients refused it due to personal choice and/or practical limitation, 22 (5.8%) were withdrawn by the urologist before the first planned 3-week cycle due to persistent haematuria or early recurrence and 18 more patients (4.7%) never started and were lost at follow-up. Out of the 308 patients starting the 1-year maintenance, 215 (52.3%) patients completed it, while 93 (30.2%) did not. The manteinance regimen was interrupted by 9 patients (9.7%) due to recurrence, while 14 (15.1%) experienced grade 3 toxicity and 55 (59.1%) refused it in absence of grade 2-3 toxicity or other evident causes. Grade-I toxicity and/or mild side effects, not responsible for maintenance treatment modification, were recorded in 193 (62.7%) patients. *Discussion and Conclusion:* The European Association of Urology (EAU) and the National Comprehensive Cancer Network (NCCN) recommend one year BCG maintenance as the elective intravesical adjuvant regimen in intermediate- and high-risk NMI-BC, conservatively treated. The scientific urologic community does not consider BCG-related toxicity as the major limiting factor. In the present study patient's compliance during the induction cycle reached 92%. However during the interval between the induction course and the first maintenance instillation, 50 patients (13%) became reluctant to treatment while 22 (6%) were excluded after cystoscopy for suspicious bladder lesion. Toxicity (moderate to severe) was responsible for the interruption of BCG maintenance only in a low number of patients. The high rate of patients who abandoned the treatment could be attributable to the persistency of mild symptoms causing consistent discomfort that justified the reluctance to carry on the therapy. Moreover the inadequate counseling in everyday clinical practice when compared to multi-institutional trials should be taken into account. A structured periodical counseling and a timely recognition and treatment of symptoms, might significantly ameliorate the acceptance of BCG maintenance.

Acknowledgements: We wish to thank the GSTU Foundation for administrative support.

1 Sylvester RJ *et al*: Intravesical bacillus Calmette-Guerin reduces the risk of progression in patients with superficial bladder cancer: a meta-analysis of the published results of randomized clinical trials. J Urol *168*: 1964-1970, 2002.

2 Malmstrom PU *et al*: An individual patient data meta-analysis of the long-term outcome of randomised studies comparing intravesical mitomycin c *versus* bacillus Calmette-Guerin for non–muscle-invasive bladder cancer. Eur Urol *56*: 247-256, 2009.

3 Oddens J *et al*: Final results of an EORTC-GU of EORTC genito-urinary cancers group randomized study of maintenance bacillus comparing intravesical instillations of Calmette-Guerin in intermediate- and high-risk Ta, T1 papillary carcinoma of the urinary bladder: one-third dose *versus* full dose and 1 year *versus* 3 years of maintenance. Eur Urol *63*: 462-472, 2013.

33

IMPACT OF PRE-OPERATIVE HEMOGLOBIN VALUES AND PERI-OPERATIVE BLOOD TRANSFUSION ON CANCER SPECIFIC AND OVERALL MORTALITY AFTER RADICAL CYSTECTOMY FOR BLADDER CANCER: RESULTS FROM A SINGLE INSTITUTION COHORT

Marco Moschini, Giovanni La Croce, Vito Cucchiara, Lorenzo Rocchini, Nazareno Suardi, Marco Bianchi, Federico Pellucchi, Francesco Montorsi, Renzo Colombo

Department of Urology, University "Vita-Salute" San Raffaele, Milan, Italy

Introduction: Few studies investigated the impact of peri-operative blood transfusions (PBT) on cancer-specific (CSS) and overall survival (OS) in the context of bladder cancer (Bca). However, none of those have taken into account the role of pre-operative hemoglobin levels (Hb), which has been suggested to be related to systemic disease dissemination. Accordingly, the aim of the study was to evaluate the impact of both Hb and PBT on CSS and OS in patients treated with radical cystectomy (RC) for BCa. *Methods:* The study cohort included 1575 patients treated with RC for BCa between 1990 and 2012 at a single tertiary referral center. Complete clinical, pathological and follow up-data were available for all the patients. First, Kaplan-Meier curves were employed to assess the CSS and OS rates in the overall cohort. Subsequently, univariable (UVA) and multivariable (MVA) Cox regression analyses were used for prediction of CSS and OS. First the effect of PBT and Hb on CSS and OS were analyzed separately. Finally, both the variables were included in the same model. Covariates consisted of patient age at surgery, Hb, PBT, pathological T stage, pathological N stage. *Results:* Mean age at RC was 67 years. Overall, 580 (36.8%) patients received PBT (mean number of blood units received: 3). Mean and median Hb values were 12.4 and 12.6 mg/dL (range 8.0-17.5 mg/dL), respectively. With a mean follow-up time of 41 months, the 2 and 5 years CSS and OS were 83.1 *vs*. 75.2 and 68.3 *vs*. 59.8%, respectively. At UVA, patients who received PBT had a 2-fold higher risk of succumbing to CSM (HR: 2.11; $p<0.001$) and OM (HR 1.98; $p<0.001$) compared to patients who did not receive any PBT. Similarly, patients with higher Hb levels were more likely to succumb to CSM and OM than patients with lower Hb values (HR 0.84 and 0.85; all $p<0.001$). At MVA, both PBT and Hb were significantly associated with CSM and OM when included in different models (all $p\leq0.02$). Conversely, when both variables were included in the same model, only Hb remained significantly associated with CSM and OM (HR 0.89 and 0.91 respectively; all $p\leq0.03$). *Conclusion:* Despite the influence of PBT on CSM and OM which appears to be relevant even in bladder cancer, its effect on oncological outcomes disappears when Hb is taken into account. Further studies are needed to further investigate the possible immunosuppressive effect of PBT as well as the role of Hb and systemic dissemination of BCa.

34

THE IMPACT OF NUMBER OF LYMPH NODE REMOVED IN THE DETECTION OF LYMPH NODE METASTASIS: A SENSITIVITY CURVE ANALYSIS

Marco Moschini, Giovanni La Croce, Vito Cucchiara, Lorenzo Rocchini, Nazareno Suardi, Marco Bianchi, Federico Pellucchi, Francesco Montorsi, Renzo Colombo

Department of Urology, University "Vita-Salute" San Raffaele, Milan, Italy

Introduction and Objectives: To assess the correct number of lymph nodes (LNs) to be removed at Radical Cystectomy (RC) to ensure an accurate lymph nodes metastasis (LNM) staging. *Patients and Methods:* Between 1995 and 2012, 1016 RC for bladder cancer (BCa) were performed at a single tertiary care institution. Demographical, clinical and pathological variables were recorded for each patient. The relationship between the number of removed LNs and the probability to have LNI at final pathology examination was assessed in receiver operating characteristic (ROC) analyses. The ROC curve coordinates were used to graph the probability of finding LNI according to the number of removed and examined LNs. *Results:* Among the patients who underwent cystectomy, the prevalence of LNM was 35.7% (363 of 1016). T stage, grade, LVI, LND removed, type of BCa at last TUR and N Radiological Stage is strongly associated with LNM (all $p<0.001$). Gender, age at surgery and Carcinoma in Situ (CIS) at RC were not statistically significantly different between patients with or without pathologically confirmed nodal metastasis. ROC curve analyses were used to explore graphically the relationship between the numbers of removed and examined LNs and the probability of finding one or more metastatic LN in the overall population and in specific