

A potential reason for poor survival among patients with muscle-invasive bladder cancer (MIBC) in Poland is initial disqualification from curative treatment due to advanced stage of the disease or low performance status. The aim of this study was to describe patterns of care in patients with newly diagnosed MIBC.

This is a multicentre retrospective cohort study involving 296 consecutive patients with primary histologically diagnosed MIBC. Therapeutic decisions and potentially underlying clinical factors were analysed.

Full clinical data was available for 285 patients. One hundred and sixty-four (57.5%) patients were qualified for radical cystectomy (RC), 32 (11.2%) patients for a second step of transurethral resection of the bladder tumour (TURBT) intentionally followed by systemic chemotherapy, four (1.4%) patients after complete TURBT were qualified for adjuvant intravesical chemotherapy only, while the remaining 85 (29.8%) patients were qualified for palliative treatment in the form of chemotherapy and/or radiotherapy and/or best supportive care. Patients disqualified from curative treatment were older (78 vs. 69 years,  $p < 0.02$ ), had lower BMI values (24.5 vs. 25.7 kg/m<sup>2</sup>,  $p < 0.02$ ), lower haemoglobin concentration (11.6 vs. 12.9 mg/l,  $p < 0.02$ ), declared lower rate of nicotine abuse (50.5% vs. 72.1%,  $p < 0.02$ ), and had a shorter time interval between first symptom and diagnosis (30 vs. 60 days,  $p = 0.02$ ).

As the majority of Polish patients with primary MIBC receive curative treatment, the stage of the disease alone seems not to be the leading cause of poor survival. However, appropriateness of qualification for RC and treatment quality needs to be assessed for final conclusion on the factors influencing outcomes of treatment in Poland.

**Key words:** bladder cancer, cystectomy, treatment, patterns of care.

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## Patterns of care in patients with muscle-invasive bladder cancer – a retrospective cohort study

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### Introduction

In Central Europe patients with muscle-invasive bladder cancer (MIBC) have relatively poor prognosis [1]. This includes also patients initially undergoing radical surgical treatment [2]. In order to find underlying reasons, we have previously estimated the timing of radical cystectomy in a multicentre study involving 575 Polish patients [3]. However, one of the most important limitations of the abovementioned study was the inclusion criterion of being cystectomised instead of being diagnosed with MIBC. Consequently, the data on final treatment in the whole population of MIBC patients are still limited. Within this short communication we address this important issue.

The aim of this study was to describe patterns of care in Polish patients with newly diagnosed MIBC.

### Material and methods

This is a multicentre retrospective cohort study involving 296 consecutive patients with primary MIBC diagnosed in the years 2012–2013 in 13 Polish urological centres. In all patients the diagnosis was made based on histological examination of surgical specimens from transurethral resection of the bladder tumour. No additional staging tool was considered within this study. The mean age of the cohort was 72.1 years and male-to-female ratio was 3.2 : 1 (225 vs. 71).

Therapeutic decisions, as well as potential underlying clinical factors, were analysed. Differences between cystectomised and non-cystectomised patients were evaluated with *U* Mann-Whitney test and  $\chi^2$  test for quantita-

tive and qualitative variables, respectively. *P* values below 0.03 were considered statistically significant.

## Results

Full clinical data were available for 285 patients. 164/285 (57.5%) patients were qualified for radical cystectomy (RC). Table 1 presents detailed data comparing subgroups of patients depending on qualification for RC.

Among 121/285 (42.5%) patients disqualified from RC, 32/121 (26.4%) patients were qualified for a second step of transurethral resection of the bladder tumour (TURBT) intentionally followed by systemic chemotherapy, four (3.3%) patients after complete TURBT were qualified for adjuvant intravesical chemotherapy only, while the remaining 85 (70.2%) patients were qualified for palliative treatment in the form of chemotherapy and/or radiotherapy and/or best supportive care.

## Discussion

Despite poor outcomes of treatment of patients with MIBC in Central Europe, data on patterns of surgical and medical management, as well as its quality, are still unavailable. We performed a retrospective study aimed at the description of further treatment in patients diagnosed with primary MIBC.

The most important finding of our analysis is the high percentage of patients qualified for radical treatment. A clinically important fact is that these numbers would probably be higher if we excluded from the analysis patients with metastatic disease, who are not candidates for RC by definition. Available data on patterns of care in MIBC patients published in the last 10 years present significantly lower rates of curative treatment, covering 21–52.5% of patients [4–7]. However, the studies cited above included more patients and/or were based on cancer or national registries. This potentially improves their reliability and reproducibility. On the other hand, some portion of patients included in these analyses was treated with radiotherapy alone, which nowadays is not regarded as a radical approach.

We have also found that patients disqualified from curative treatment were older, had lower BMI values, lower haemoglobin concentration, and declared lower rate of nicotine abuse and shorter time interval between first symptom to diagnosis. While age alone should not influence clinical decisions, it is suggested that older MIBC patients are less frequently qualified for radical surgery [8], and it is well established that the morbidity related to RC is increased within this group [9–12]. Low haemoglobin concentration, as well as malnutrition is associated with shorter survival after RC [9, 13, 14]. Moreover, abnormal BMI value increases the risk of surgical complications [12, 15, 16]. Our findings on nicotine use and time from first symptom to diagnosis are both surprising and unexplainable. Considering the pathogenesis and clinical course of the disease, one can suspect that these results are fortuitous. Finally, they are of no practical significance.

The study's strengths are its multi-institutional character, involvement of both academic and non-academic urological departments, and enrolment of a representative cohort of patients. The most important limitation of the study is the lack of data on lymph node and distant metastases. As available clinical staging is limited to regional status, among patients disqualified from surgery there are both patients unfit for surgery and patients with initially metastatic disease. Their differentiation in the present study was not performed.

## Conclusions

Because the majority of Polish patients with primary MIBC receive curative treatment, the stage of the disease alone seems not to be the leading cause of poor survival. However, the appropriateness of qualification for RC and treatment quality needs to be assessed for a final conclusion on the factors influencing outcomes of treatment in Poland.

The results presented within this paper come from post hoc analysis of data collected during a multicentre study aimed at oncological characterisation of a large cohort of Polish patients with primary urothelial carcinoma of the bladder [17].

**Table 1.** Comparison of patients depending on qualification for radical cystectomy

Parameter	Overall	Qualified for RC	Not qualified for RC	<i>P</i> value (qualified vs. not qualified)
Number of patients	285	164	121	n.a.
Age	73 years	69 years	78 years	0.000
BMI	25.1 kg/m <sup>2</sup>	25.7 kg/m <sup>2</sup>	24.5 kg/m <sup>2</sup>	0.002
Hb serum concentration	12.5 mg/l	12.9 mg/l	11.6 mg/l	0.002
History of haematuria	88.9%	90.1%	87.1%	0.358
Nicotine abuse*	63.2%	72.1%	50.5%	0.001
Time from first symptom to diagnosis	45 d	60 d	30 d	0.022

Table presents absolute, median, or percentage values.

BMI – body mass index, Hb – haemoglobin; RC – radical cystectomy

\*Data on nicotine use was available only in 220 patients (77.2% of cohort)

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