Body Surface Area of Adult Cancer Patients: An Italian Multicenter Retrospective Study

SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA
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OBJECTIVES

To estimate the dose of many cancer therapies, a patient's body weight or body surface area (BSA) are often used. However, very limited data on weight and BSA distributions in cancer patient populations are available in the literature, none specific to Italy. The aim is to overcome the lack of reliable data determining the weight and BSA distributions of cancer patients in our district.

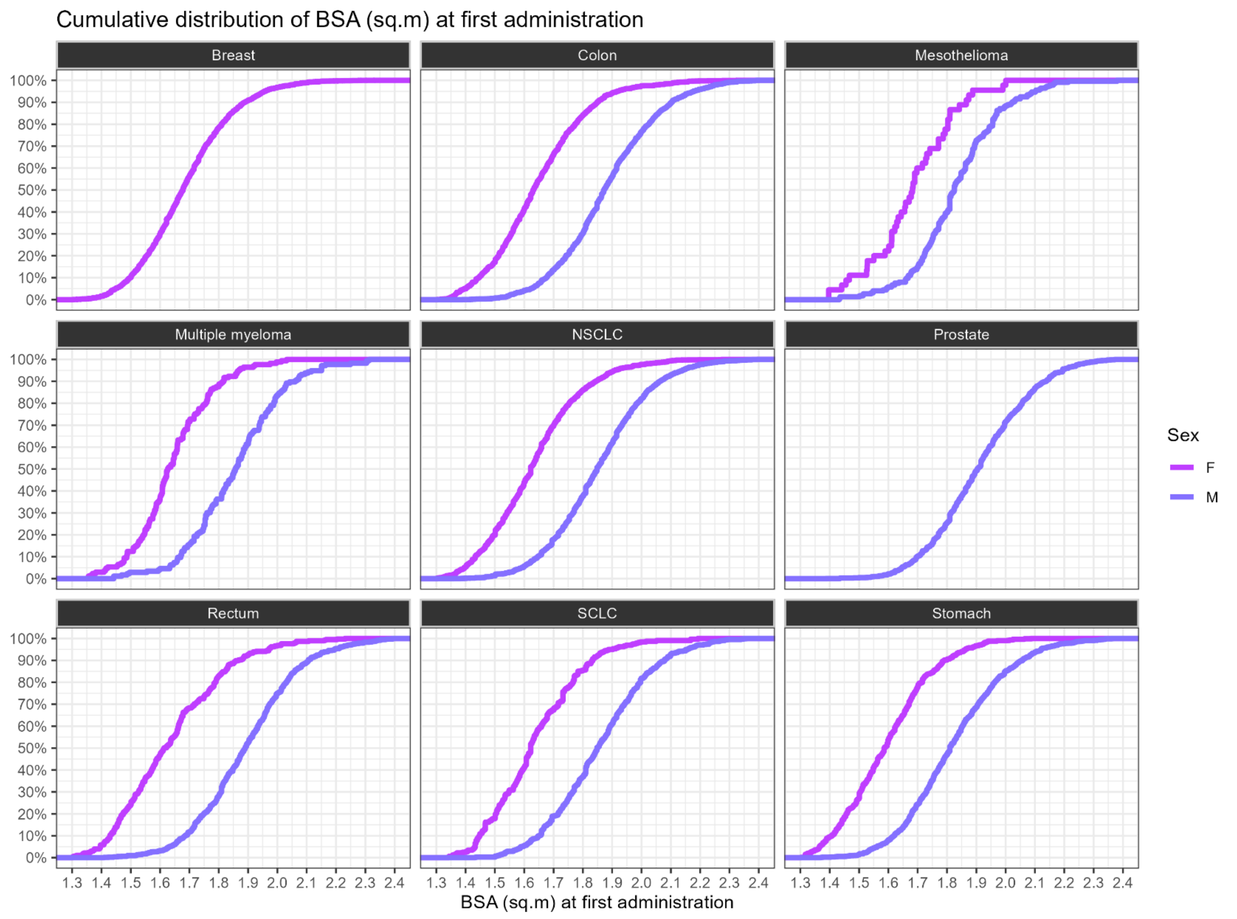
METHODS

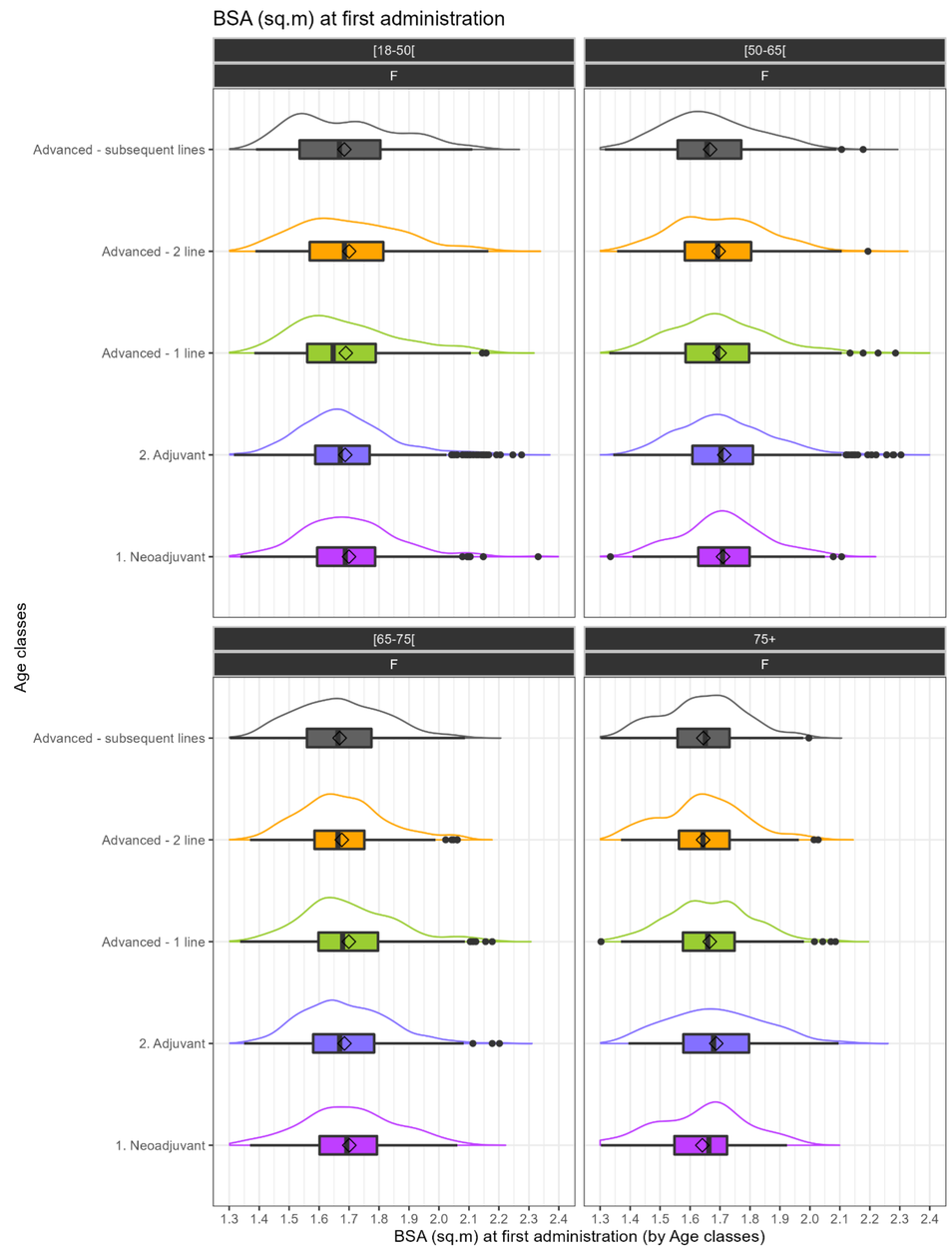
Adult patients (aged ≥18 years old) resident in Emilia-Romagna region with histologically or cytologically confirmed diagnosis among lung, breast, prostate, colorectal, stomach cancer and myeloma, who initiated systemic anti-cancer treatment in the district of Romagna between 2011 and 2021 were considered. The clinical dataset was obtained from electronic health records. BSA (m^2), calculated using Dubois and Dubois method and weight (Kg) were analysed by gender, tumour site, age class and treatment setting.

RESULTS

Among 21,250 patients, median age was 67 years (IQ range: 57-75) and the majority was female (55.66%). Primary tumours were: breast cancer (32.76%) and NSCLC (23.19%). Median BSA was 1.66 m^2 and 1.86 m^2 for females and men, respectively.

The highest median BSA was observed among breast (1.68m^2) and prostate cancer (1.90 m^2), while the lowest for gastric cancers in both gender group (1.58 and 1.81 m^2). A similar trend was observed for weight.





All tumor locations – Weight (Kg)

Sex	Tumour site	N	1%	5%	10%	25%	50%	75%	90%	95%	99%	Mean	SD	min-max
F	Breast	6962	45	49	51	57	64	73	82	90	103	65,78	12,62	40 - 135
	Colon	1517	41,16	45	48	54	61	70	80	85	102	63,00	12,96	40 - 140
	Mesothelioma	45	45	46,6	50	58	65	73	76	77	85,56	64,67	10,12	45 - 86
	Multiple myeloma	169	43,36	49	51	57	62	68	77	81,6	91,6	63,31	10,48	40 - 110
	NSCLC	1846	40	45	47	52	60	68	77	85	100	61,49	12,52	40 - 140
	Rectum	376	40	45	48	52	60	70	80	85	100	62,59	13,40	40 - 117
	SCLC	322	43	45	50	53	60	70	78	84,95	99,95	62,23	12,38	40 - 120
	Stomach	591	40	42	45	50	58	65	75	82	96	59,26	12,00	40 - 118
M	Colon	1908	50	57	60	67	75	83	93,3	100	117,93	76,01	13,43	44 - 132
	Mesothelioma	226	46,25	54,25	59	65	70	77	85	90	98,75	71,40	11,29	44 - 136
	Multiple myeloma	176	46,5	58	62	65	71	81,2	90	97,75	106,25	74,12	12,13	45 - 110
	NSCLC	3082	49	55	59	65	72	80	90	96	110	73,62	13,15	40 - 172
	Prostate	1477	51,52	60	63	70	78	87	97	104	120	78,88	13,70	44 - 140
	Rectum	776	50	58	61	68	75,5	85	95	100	120	77,45	14,45	46 - 175
	SCLC	654	50	54	58	65	73	82	90	98	110	74,26	13,10	45 - 134
	Stomach	1123	47,22	53	56	62	70	79	89	95	113,12	71,29	13,20	40 - 135

Focusing on breast, we observed a decreasing trend (-2.11%) of the median weight and BSA to the advancement of the treatment (from neo-adjuvant to third or later-line).

DISCUSSION AND CONCLUSIONS

No Standard BSA and weight values for patients being treated in Italy are available on which to base accurate drug dose and cost calculations. Therefore, it is important to use appropriate data that take into consideration gender, tumour site and treatment setting. In the absence of reliable estimates of weight and BSA distribution, we believe these results may be generalised and used in future costings and budgetings for new agents.