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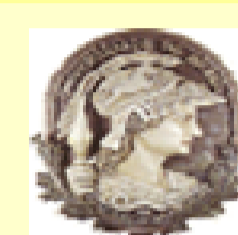
Radiosynovectomy with ⁹⁰Yttrium and ¹⁵³Samarium 488 patients/842 injections Preliminary report on radiation safety

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Introduction: Radioactive synovectomy (RS), intra articular injection of radiopharmaceuticals, is a minimally invasive and highly cost effective alternative to arthroscopy, being for some authors the first option when prophylaxis fails to control synovitis [1-3]. Even without established causation with cancer, RS is avoided by some, due to this concern [2,6-8]. **Aim:** We report the results of a survey regarding malignancy after RS performed at 3 centres in Brazil, aiming to contribute to the knowledge of RS safety.

Methods: Using the same RS protocol, the centres applied ⁹⁰Yttrium Citrate, ⁹⁰Yttrium Hydroxyapatite or ¹⁵³Samarium Hydroxyapatite, depending on local availability. We performed a survey addressing cancer in these patients.

Results: 488 patients (ages 3-51) received 1 to 3 injections, totaling 842 RS (table 1). Follow-up was 6 months to 9 years. One patient aged 14 years presented Ewing sarcoma, 11 months after RS. He was successfully treated with surgery and chemotherapy.

Some of the results of RS with ⁹⁰Y-C and with ⁹⁰Y-HA are detailed elsewhere [4,5]. Briefly, in 245 joints treated with ⁹⁰Y-C the mean number of bleeds per year was reduced from 19.8 to 2.6. Also pain and ROM were improved in most joints [4]. Similar results were achieved with ⁹⁰Y-HA [5].

Table 1. Centre description of patients submitted to radioactive synovectomy

		Hemomat	%	HU/ UFPR	%	HUCFF/ UFRJ	%
Gender	Male	244		139		100	
	Female	3		2		0	
Age (median/ years)		13 (3-45)		14 (4-51)		14 (5-34)	
SD		7.5		7.5		6.3	
Diagnosis	HA	220	89.1	126	89.4	85	85
	HB	20	8.1	12	8.5	15	15
	vWD	7	2.8	3	2.1	0	0
Inhibitor to FVIII or IX		29	11.7	6	4.3	9	9
Joints	Knees	219	46.1	79	35.3	73	51
	Elbows	135	28.4	84	37.5	37	25.9
	Ankles	113	23.8	54	24.1	33	23.1
	Shoulders	8	1.7	7	3.1	0	0
Total number of joints		475		224		143	
Radiopharmaceutical	C Y-90	278	58.5	224	100	0	0
	HA Y-90	97	20.4	0	0	54	37.8
	HA Sm-153	100	21.1	0	0	89	62.2

Hemomat: Hemocentro de Mato Grosso, Cuiaba, Brazil; HU/ UFPR: Hospital de Clínicas da Universidade Federal do Paraná, Curitiba, Parana, Brazil; HUCFF/ UFRJ: Hospital Universitário Clementino Fraga Filho/ Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brazil; HA: haemophilia A; HB: haemophilia B; vWD: von Willebrand Disease; C Y-90: Yttrium⁹⁰ Citrate; HA Y-90: Yttrium⁹⁰ Hydroxyapatite; HA Sm-153: Samarium¹⁵³ Hydroxyapatite. SD: Standard deviation.

Conclusion: Synovitis is a burden for patients and the decision of using a cost-effective and minimally invasive treatment such as RS should be outweighed with the theoretical risks.

Causality of ES by RS is improbable in this case: latency (11 ms) is far below minimum (5-10 yrs) for radio-induction of solid tumours and ES is not known as a radio-induced cancer [10,11].

Though presenting limitations (relatively short follow-up and lack of comparison with this non-exposed group) this ongoing study suggests RS was safe regarding cancer. However long term surveillance, ideally on multiple centres, is essential to fully understand the safety of RS with the current radiopharmaceuticals.

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