P.M.Ivanov, M.I.Tomskiy, I.D.Ushnitskiy, N.S.Kipriyanova, T.I.Nikolaeva

MAXILLOFACIAL MALIGNANT TUMORS IN YAKUTIA

ABSTRACT

On the basis of retrospective analysis the first documentation of patients having malignant tumour diagnosis of maxillary-facial part for the first time is given. The populous, territorial and temporal regularities of population morbidity in Yakutia are found out.

K**eywords:** maxillofacial cancer, prevalence, dynamics, prognosis.

PREFACE

In the whole world malignant tumours of maxillary-facial part are a rare case. The world statistics suggest the most standardized rate more than 5.0 0/000 (men) and 2.0 0/000 (women) in some provinces of the USA, Canada, France, Italy, India and Australia (2).(IARC,2007). As a whole a proportion of the given malignant tumour among other MTs is not more than 1-2%. Relatively a high level of morbidity in these countries is associated with smoking. In particular smoking turned out to be one of the reasons of maxillary-facial tumour (lips, mouth cavity, gullet), organs of breathing (nasopharynx, nose sinus, larynx, lungs), organs of digestion (gullet, stomach, pancreas), reproductive (cervix of the uterus), urinary organs(urinary bladder, kidney) etc. (1)

In 2010 about 15.300 cases of maxillary-facial malignant tumour were found out in Russia. It was 2.96% out of total number registered malignant tumours, but rough data are 10,7 0/0000 (4).

Actuality of epidemiological aspects of the given problem is connected with cancer of tongue, mucous mouth cavity, mouth-larynx gullet leading to heavy anatomical-topographic changes and functional disorder of organs and tissues. In this case the maxillary-facial malignant tumour is a big social problem especially in thinly populated northern regions of Yakutia . (3.5)

It's important to notice that questions of diagnostics perfection, treatment and prophylaxis are based on epidemiological peculiarities of the malignant tumours. Besides, results of territorial, populous analysis of malignant tumours might be interesting for specialists to work a purposeful, argumentative anticancer program.

RESEARCH AIM is to clear up populous, territorial and temporal regularities of morbidity with malignant tumours of maxillary-facial part of the population in Yakutia.

MATERIALS AND METHODS

The first documents of 800 patients suffering from maxillary-facial cancer in the Republic of Sakha (Yakutia) were analyzed in the period of 2001-2015. It made up 2.6% (In Russia 3.0% in 2010) of registered patients with MT for the first time (30837) in Yakutia at the same period of time. Men made up 70.5%. The ratio between men and women is 2.4:1.0. Calculation is done using an applied program.

RESULTS AND DISCUSSION

Morbidity of the Republic Sakha population has a tendency to increase. Thus, in Yakutia in 2011-2015 annual number of patients having MT for the first time was 2248, it exceeds by 18.1% of the first data of 2001-2005 (1903 men).

Maxillary-facial malignant tumour is characterized by sexual differences (Table 1). It was found out that cancer of tongue, salivary gland, mucous mouth cavity increased from 55.0% in 2001-2005 to 63.7% in 2011-2015 and depended on the rate of growth of the given localization of men (50.0±3.23 and 58.0±2.94% $p<0.05$), while of women was (70.0±2.96 and 73.3±2.64%). With the exception of lip cancer which during a temporal interval frequency went down 2 times (8.5% in 2001-2005, 4.3% in 2011-2015) but it was not so important.

The most affected age of both groups is 50 and elder (lips-79.7%, mouth cavity -84.6%, gullet 82.4%). It's noticed that annual growth of patient number with the first diagnosis witnesses a population ageing. But on the other hand it proves improvement of prophylactic work at places.

Our analysis of the proportion of patients suffering from maxillary-facial malignant tumour of five years found out the growth by 17.1%. It's explained by the growth of elder woman population exceeding by 170.0% of the first level, while man population data are stable.

Dynamics of sexual and age data of maxillary-facial malignant tumour in the period of 2000 and 2014 and its possible structure by 2020 is given in Table 2. Comparison of age morbidity characteristic cleared up that coefficient of men morbidity increases women one depending on age. The maximum age morbidity in both groups is 70 and more.

Data extrapolation of maxillary-facial malignant tumour in the period of 2000-2014 allows to notice that morbidity dynamics depended on a sex in both groups. According to the analysis the prognostic joint data of nozological morbidities of all forms for men will be 2.9 0/0000 or 20.8% in 2020 exceeding the first level (2.4± 0.71 0/0000 in 2000) In the data growth the main role will be given to malignant tumours of mouth-nose-larynx-gullet which will increase by 92.9% of 2000-level (Table 3).

According to the prognosis malignant tumour of maxillary-facial part for women will be 0.9 0/0000 (90% of the 2000-level), the reason is lowering data tongue, salivary gland, mucous mouth cavity cancer from 4.2±0.92 0/0000 in 2000 to 2.8± 0.76 in 2014 (66.7% of the first data).

In Table 4 results of the data analysis of malignant tumour in maxillary-facial part of the Republic Sakha are given. The territory of the Republic Sakha is famous for its severe climate but also for its industrial exploitation of deposits and its migration.

For working out scientifically-based measures for prophylaxis we consider that it's important very much to divide the territory into separate regions and medico- geographical zones to characterize spread of malignant tumour in maxillary-facial part. According to the analysis the highest men morbidity with malignant tumour is shown in Olenek (14.6 o/0000, Kobey (14.2), Aldan (13.8), Verkhnekolymsk (13.6) and Ust-Yana (13.4) and women morbidity in Abyisk (8.2), Nyurba (5.4) and Srednekolymsk (7.0 o/oooo). Most of these regions are gold-diamond-coal extractive industry.

Among six singled out medico-geographical zones relatively a high men morbidity of maxillary-facial MT is found out in Southern (7.25 0/0000) , Eastern zones (6.75) and in industrial centres (6.22), while women MT- in Eastern (4.49), Western (2.77) and Southern zone of Yakutia (3.29). Table 5.

Relatively high cancer data of tongue, salivary gland, mucous mouth cavity are observed in men living in big industrial centres (5.68 0/0000), Eastern (4.67) and Southern zones of Yakutia (3.66) and in women living in Eastern (3.49), Western (1.98) zones of Yakutia and in big cities (2.09 0/0000).

Similar territorial variability is found in analysis of malignant tumour of mouth, nose, larynx-gullet. The highest data are observed in men and women of Southern Yakutia (accordingly 4.88 and 1.79 0/0000) and the polar circle (4.88 and 1.79 0/0000).

In conclusion we stress that unfavorable situation and prognosis of cancer morbidity of maxillary-facial part among the population of the Republic Sakha (Yakutia) demand working out scientifically-based measures of prophylaxis to reveal in proper time and to treat chronic diseases known as a before cancer symptom. It's impossible to diagnose in time and to treat malignant tumor of maxillary-facial part without intensifying activities leading to perfection of population sanitary culture.

REFERENCES

1. Garcia M.V. [et al] Rak v mire: fakty i cifry [Cancer in the world: facts and figures]. Atlanta, Georgia, American cancer society, 2007, p. 85.

2. Rak na pjati kontinentah [Cancer incidence in Five Continents] Vol. IX, IRAC, 2007.

3. Smetanina V.D., Ivanov P.M., Tomsky M.I. Pomoshh' pacientam, stradajushhim ot raka gortani i pishhevoda v RS (Ya) [Cancer assistance to patients suffering from mouth cavity and gullet in the RS (Ya)]. Yakutsk, 2014, pp. 22-25.

4. Chissov V.I. Zlokachestvennye novoobrazovanija v Rossii v 2010 godu (zabolevaemost' i smertnost') [Cancer in Russia in 2010 (morbidity and mortality)] Pod redakciej V.I. Chissova, V.V. Starinskogo, G.V. Petrovoj [Edited by V.I. Chissov, V.V. Starinsky, G.V. Petrova]. Moscow, 2012, 260 p.

5. Ushnitsky I.D., Ivanov P.M., Chakhov A.A., Varlamov P.G., Baisheva V.I. Osobennosti rasprostranenija zlokachestvennyh opuholej verhnej cheljusti v RS (Ya) [Spread characteristics of malignant tumours of maxillary-facial part in RS (Ya)]. Yakutsk, 2012, pp.5-7.

AUTHORS

Ivanov Pyotr Mikhailovich, MD., prof., head of cancer course, M.I NEFU named after M.K.Ammosov,

Tomskiy Michail Innokentievich, MD., prof., director of Ya SC CMP;

Nikolaeva Tatyana Ivanovna, MD., prof., s.s.w SBE YaROD;

Ushnitsky Innokentiy Dmitrievich – MD, Professor, Head of the Department of Medical, Surgical, Prosthetic Dentistry and Pediatric Dentistry at Medical Institute of North-Eastern Federal University named after M.K Ammosov, Yakutsk (Russia);

Kipriyanova Nadezda Sidorovna, MD, prof., chair head , NEFU.

Table 1

Structure dynamics of annual maxillary-facial malignant tumour morbidity of the population in Yakutia (2001-2015) n(m±m%)

Localization (ICD-10)	Total 2001-2015	Including:		
		2001-2005	2006-2010	2011-2015
Male/Female				
Total Malignant Neoplasms (MN) (C00-97) n(%)	30837(100.0)	9515(100.0)	10084(100.0)	11238(100.0)
Including.: Total MN of Maxillofacial area* (C00-14)	800(2,59)	240(2,52)	279(2,77)	281(2,50)
Including: Lips (C00)	68(8,6±0,98)	25(10,4±1,97)	31(11,1±1,88)	12(4,3±1,21)
Tongue and oral mucosa (C01-09)	470(58,8±1,74)	132(55,0±3,21)	159(57,0±2,96)	179(63,7±2,87)
Pharynx (C10-14)	262(32,8±1,66)	83(34,6±3,07)	89(31,9±2,79)	90(32,0±2,78)
Male				
Total MN (C00-97)	15060(100,0)	**4773**(100,0)	4935(100,0)	5352(100,0)
Including.: Total MN of Maxillofacial area* (C00-14)	564(100)	180(100)	208(100)	176(100)
Including: Lips (C00)	57(10,1±0,91)	22(12,2±2,11)	26(12,5±1,98)	9(5,1±1,31)
Tongue and oral mucosa (C01-09)	299(53,0±1,71)	90(50,0±3,23)	107(51,4±2,99)	102(58,0±2,94)
Pharynx (C10-14)	208(36,9±1,55)	68(37,8±3,13)	75(36,1±2,87)	65(36,9±2,88)
Female				
Total Neoplams (C00-97)	15777(100,0)	4742(100,0)	5149(100,0)	5886(100,0)
Including.: Total MN of Maxillofacial area* (C00-14)	236(100)	60(100)	71(100)	105(100)
Including: Lips (C00)	11(4,7±0,41)	3(5,0±1,41)	5(7,1±1,53)	3(2,9±0,99)
Tongue and oral mucosa (C01-09)	171(72,5±1,45)	42(70,0±2,96)	52(73,2±2,65)	77(73,3±2,64)
Pharynx (C10-14)	54(22,9±0,89)	15(25,0±2,80)	14(19,7±2,38)	25(23,8±2,54)

Table 2

Dynamics of sexual and age data of maxillary-facial MT of the Republic Sakha population in the period of 2000-2014 and its prognosis by 2020 (pop.100000)

Year	-30	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-	RF
M/F											
2000	0,4	0,0	1,2	3,3	7,4	12,4	21,3	41,2	24,0	40,0	5,9
2005	0,0	0,0	0,0	3,8	6,2	10,4	16,3	9,9	20,2	26,0	3,9
2010	0,7	0,0	0,0	1,6	10,5	9,6	17,4	18,0	30,3	31,8	5,5
2011	0,2	0,0	2,9	1,6	5,7	8,1	12,0	10,5	49,3	28,3	4,4
2012	0,0	0,0	0,0	3,2	4,5	14,7	25,1	29,6	16,6	20,6	5,4
2013	0,0	0,0	5,9	3,2	0,0	13,6	22,9	30,1	33,6	28,8	6,0
2014	0,0	0,0	0,0	1,6	1,6	4,2	20,9	21,9	53,4	77,3	8,0
2020			1,5	1,2	-1,1	6,1	16,5	14,2	16,7	27,6	5,4
Male											
2000	0,4	-	-	2,2	7,5	18,0	37,8	67,9	23,9	41,7	6,5
2005	-	-	-	7,8	12,9	19,2	20,3	23,1	50,6	49,4	6,5
2010	-	-	-	3,2	13,7	14,7	35,2	28,0	30,9	64,0	7,4
2011	0,4	-	3,0	-	11,8	8,5	23,0	18,5	94,2	47,0	6,4
2012	-	-	-	3,2	3,1	25,6	41,1	57,8	28,2	23,7	8,0
2013	-	-	3,0	6,5	13,1	31,8	43,6	49,0	73,0	64,6	11,4
2014	-	2,5	-	3,2	13,5	17,8	35,4	41,3	41,4	24,8	8,0
Female											
2020				3,2	0,9	13,1	31,9	33,1	26,8	36,7	8,0
2000	-	-	2,4	4,4	9,6	10,4	13,4	24,7	16,1	44,1	5,0
2005	-	-	-	-	-	2,8	12,9	-	-	14,5	1,4
2010	8,4	-	-	-	7,7	6,3	5,3	19,9	24,5	15,8	3,7
2011	-	-	3,1	2,8	-	6,2	4,6	10,1	8,3	19,2	2,4
2012	-	-	-	2,9	5,1	6,1	17,2	18,3	8,8	19,1	3,5
2013	-	-	3,1	3,0	-	11,9	16,1	31,7	29,7	27,1	4,9
2014	-	2,0	-	-	2,6	3,2	-	12,7	15,0	28,3	12,2
2020					0,5	5,5	11,8	20,6	14,0	20,1	6,3

Table 3

Dynamics of the Republic Sakha population morbidity with maxillary-facial MT in 1990-2014 and its characteristics by 2020. (popul.100000)

Observation years	MN of Maxillofacial area - total (ICD-10 C00-09,46,2, 10, 11, 12, 13)			Including:								
				Tongue (C00)			Tongue, salivary glands, oral mucosa(C0-09,46,2)			Fauces, nasopharynx, hypopharynx (C10, 11, 12, 13)		
	M/F	Male	Female	M/F	Male	Female	M/F	Male	Female	M/F	Male	Female
2000	1,7±0,42	2,4±0,71	1,0±0,45*	0,6±0,25	1,0±0,46	0,2±0,20	4,2±0,65	4,1±0,91	4,2±0,92	1,1±0,34	1,4±0,54	0,8±0,40
2001	1,6±0,41	2,9±0,77	0,4±0,28*	0,4±0,20	0,8±0,41	-	3,5±0,59	4,3±0,94	2,6±0,73	1,2±0,35	2,0±0,65	0,4±0,28*
2002	2,1±0,47	3,9±0,90	0,4±0,29*	0,5±0,23	1,0±0,46	-	2,4±0,50	3,3±0,82	1,6±0,57*	1,6±0,41	2,9±0,77	0,4±0,29*
2003	2,2±0,48	3,2±0,84	1,2±0,50	0,5±0,24	0,6±0,37	0,4±0,29	2,8±0,55	4,1±0,94	1,6±0,58*	1,7±0,42	2,6±0,75	0,8±0,41*
2004	3,1±0,57	5,2±1,06	1,0±0,46*	0,7±0,28	1,3±0,53	0,2±0,21	3,3±0,59	4,8±1,01	1,8±0,62*	2,3±0,49	3,9±0,92	0,8±0,41*
2005	2,2±0,48	3,9±0,92	0,6±0,35*	0,4±0,21	0,9±0,43	-	1,7±0,42	2,6±0,75	0,8±0,41	1,8±0,43	3,0±0,81	0,6±0,35*
2006	2,9±0,56	5,2±1,06	0,8±0,41*	0,7±0,28	1,1±0,48	0,4±0,29	3,8±0,63	5,6±1,11	2,0±0,65*	2,2±0,48	4,1±0,94	0,4±0,29
2007	2,5±0,52	4,1±0,95	1,0±0,46*	0,7±0,28	1,1±0,48	0,4±0,29	3,2±0,58	5,0±1,04	1,4±0,54*	1,8±0,43	3,0±0,81	0,6±0,35*
2008	2,9±0,56	5,0±1,04	1,0±0,46*	0,6±0,26	1,1±0,49	0,2±0,20	3,8±0,63	5,0±1,04	2,7±0,74	2,3±0,49	3,9±0,92	0,8±0,41*
2009	1,8±0,43	3,5±0,87	0,2±0,20*	0,5±0,24	1,1±0,49	-	3,5±0,60	5,4±1,09	1,6±0,58*	1,3±0,36	2,4±0,72	0,2±0,20*
2010	2,1±0,47	3,5±0,87	0,8±0,41*	0,3±0,18	0,7±0,38	-	3,4±0,60	3,9±0,92	2,9±0,76	1,8±0,43	2,8±0,79	0,8±0,41*
2011	1,6±0,40	2,3±0,71	0,8±0,41*	0,4±0,21	0,4±0,30	0,4±0,29	2,8±0,54	4,1±0,94	2,0±0,64*	1,1±0,35	1,9±0,64	0,4±0,29*
2012	1,8±0,44	3,3±0,84	3,4±0,83	0,2±0,15	0,4±0,30	2,6±0,72	3,5±0,60	4,4±0,96	2,6±0,72	1,6±0,41	2,9±0,78	0,8±0,40*
2013	2,2±0,48	2,8±0,78	1,6±0,58	0,2±0,15	0,2±0,22	0,2±0,20	3,8±0,63	4,1±0,94	3,5±0,84	2,0±0,46	2,6±0,75	1,4±0,54
2014	1,9±0,44	2,8±0,78	1,0±0,45*	-	-	-	4,0±0,64	5,2±1,06	2,8±0,76*	1,9±0,44	2,8±0,78	1,0±0,45*
2020	**1,6**	**2,9**	**0,9**	**0,1**	**0,1**	**0,5**	**3,8**	**5,1**	**2,8**	**1,5**	**2,7**	**0,4**

* Statistically significant comparing to male indexes (p<0,05)

Table 4

Annual morbidity with all the nosological forms of maxillary-facial malignant tumour in the regions of the Republic Sakha (Yakutia) in the period of 2001-2010

Ulus (Districts)	Male	Female	Ulus (Districts)	Male	Female
Abyisky	12,9	8,2	Neryungrinsky	5,3	1,7
Aldansky	13,8	4,5	Nizhnekolymsky	6,8	3,3
Allaikhovsky	0,0	0,0	Nyurbinsky	8,7	5,4
Amginsky	10,7	2,2	Oimyakonsky	6,5	3,0
Anabarsky	0,0	0,0	Olekminsky	6,5	3,6
Bulunsky	2,0	0,0	Oleneksky	14,6	4,9
Verkhnevilyusky	4,8	0,9	Srednekolymsky	9,8	7,0
Verkhnekolymsky	13,6	3,5	Suntarsky	2,4	3,1
Verkhoyansky	10,3	1,5	Tattinsky	2,4	4,8
Vilyusky	2,4	2,3	Tomponsky	9,2	7,8
Gornyi	7,2	5,1	Ust-Aldansky	3,7	1,7
Zhigansky	4,8	4,5	Ust-Maisky	8,3	0,0
Kobyasky	14,2	1,4	Ust-Yansky	13,4	0,0
Lensky	6,3	2,5	Khangalasky	7,1	3,6
Megino-Kangalasky	8,8	1,8	Churapchinsky	6,2	1,0
Mirninsky	9,3	1,2	Ev-Bytantaisky	7,8	0,0
Momsky	8,7	0,0	Yakutsky	11,8	3,2
Namsky	5,8	1,8	Republic of Sakha (Yakutia)	8,8	2,7

Table 5

Annual morbidity with maxillary –facial malignant tumour in the territory o the Republic Sakha (Yakutia) in the period of 2001-2010

Medical and geographical areas of Republic of Sakha (Yakutia)	MN of Maxillofacial area - total (C00-09,46,2, 10, 11, 12, 13)			Including:					
				Tongue, salivary glands, oral mucosa (C0-09,46,2)			Fauces, nasopharynx, hypopharynx (C10, 11, 12, 13)		
	Total Population	Male	Female	Total Population	Male	Female	Total Population	Male	Female
Polar	5,04	7,84	2,22	2,46	3,43	1,48	2,33	3,92	0,74
Eastern	6,75	8,87	4,49	4,10	4,67	3,49	1,20	2,33	-
Western	3,55	4,37	2,77	2,13	2,29	1,98	1,32	1,87	0,79
Central	3,89	5,33	2,49	*2,21*	2,77	1,66	1,42	2,24	0,62
Southern	7,25	11,30	3,29	2,42	3,66	1,20	3,32	4,88	1,79
Bigger cities	6,22	10,10	2,62	3,82	5,68	2,09	1,78	3,26	0,41
Republic of Sakha (Yakutia)	5,47	8,36	2,70	3,12	4,35	1,94	1,79	3,04	0,60