[H/N Current Landscape]

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H/N Current Landscape

• No disclosures



- Epidemiology, risk factors and pathways
- Adjuvant treatment
- Recurrent and metastatic disease
- Neoadjuvant / Induction chemotherapy
- New therapeutic options
- Conclusions





- Discussion current adjuvant or recurrent/metastatic chemo/IO treatment options for patient with H/N cancers (excluding NPC and salivary gland tumors)
- Understanding high risk features that justify use adjuvant chemo/RT



Epidemiology

TABLE 1 Estimated new cancer Estimated New Cases

				Males	Fema	les		
Cancer site	Prostate	288,300	29%			Breast	297,790	31%
All sites	Lung & bronchus	117,550	12%			Lung & bronchus	120,790	13%
Oral cavity & pharynx	Colon & rectum	81,860	8%		T	Colon & rectum	71,160	8%
Tongue	Urinary bladder	62,420	6%			Uterine corpus	66,200	7%
Mouth	Melanoma of the skin	58,120	6%			Melanoma of the skin	39,490	4%
Pharynx	Kidney & renal pelvis	52,360	5%			Non-Hodgkin lymphoma	35,670	4%
Other oral cavity	Non-Hodgkin lymphoma	44,880	4%			Thyroid	31,180	3%
Larynx	Oral cavity & pharynx	39,290	4%			Pancreas	30,920	3%
Thyroid	Leukemia	35,670	4%			Kidney & renal pelvis	29,440	3%
	Pancreas	33,130	3%			Leukemia	23,940	3%
	All Sites	1,010,310	100%			All Sites	948,000	100%



Cell cycle deregulation by HPV



CANCER CENTER

Risk factors / Molecular pathways

- HPV (+) E6 oncoprotein targets p53, E7 inactivates RB
- Inhibition of TGFB promotes cell survival (via activation SMAD and CDK's)
- Tyrosine Kinases (AKT/PIK3/PTEN)— increases proliferation & angiogenesis

• Smoking \rightarrow mutations include TP53, CDKN2A, PTEN, PIK3.



Treatment plan

- Importance of multidisciplinary team discussion to address appropriate treatment plan
- 1. Staging scans (CT neck, PET/CT, facial MRI)?
- 2. Is tumor considered resectable? Vs definitive chemoradiation?
- 3. Pathology determine high risk factors (p16 status, PNI, LVI, ENE, margins and CPS score)
- 4. Consideration for adjuvant treatment.
- 5. Management of metastatic / recurrent H/N cancers.



Adjuvant Treatment (High Risk disease)

RTOG 9501 (ECOG 9501 and SWOG 9515)

SCC arising from oral cavity, larynx and hypopharynx.

Macroscopic complete resection

High risk features – 2 or more LN, ECE, positive margins.

Endpoint= Local and regional tumor control.

Radiotherapy (60 Gy in 30 Fx) vs RT+concurrent Cisplatin (100 mg/m2 x3)



Adjuvant Treatment (High Risk disease)

RTOG 9501 (ECOG 9501 and SWOG 9515)







Figure 3. Kaplan–Meier Estimates of Overall Survival.



Adjuvant Treatment (High Risk disease)

Table 1	Outcome	of	the	entire	group	and	3	unplanned
risk-related	subsets							

		RT	Combined	P value	HR
	All patients				
$ \longrightarrow $	10-year L-R	28.8	22.3	.10	0.73
	recurrence				
	95% CI	22.6-35.0	16.4-28.2		0.49-1.07
	10-year DFS	19.1	20.1	.25	0.88
	95% CI	13.1-25.0	14.2-26.0		0.71-1.09
	10-year OS	27	29.1	.31	0.89
	95% CI	20.5-33.5	22.3-35.8		0.70-1.12
	ECE and/or M	la <mark>rgin +</mark>			
	10-year L-R	33.10	21.00	.02	0.56
	recurrence				
	95% CI	24.2-41.9	13.7-28.2		0.34-0.92
	10-year DFS	12.3	18.4	.05	0.76
	95% CI	5.2-19.4	11.3-25.5		0.57-1.00
	10-year OS	19.6	27.1	.07	0.76
	95% CI	11.5-27.7	18.9-35.4		0.57-1.03
	No ECE and r	na <mark>rgin —</mark>			
$ \longrightarrow $	10-year L-R	23.8	24.7	.92	1.03
	recurrence				
	95% CI	15.1-32.6	14.6-34.7		0.55-1.93
	10-year DFS	26.3	22.4	.88	0.97
	95% CI	16.7-36.0	11.6-33.1		0.68-1.39
	10-year OS	35.90	32.20	.99	1.00
	95% CI	25.6-46.1	20.5-43.9		0.68-1.46
	Six + involved	d nodes			
	5-Year L-R	19.2	28.6	.46	1.59
	recurrence				

	Assigned	Estimus	5-year estimate	10-year estimate	Hazard ratio
	treatment	Failures	(95% CI)	(95% CI)	(95% CI)
		All I	patients		
Death from any cause*	RT	148	37.1 (30.4-43.8)	27.0 (20.5-33.5)	-
	RT + CT	141	45.8 (38.8-52.7)	29.1 (22.3-35.8)	0.89 (0.70-1.12)
Death from study cancer	RT	121	43.0 (35.8-50.2)	35.1 (27.7-42.5)	-
-	RT + CT	100	56.9 (49.6-64.1)	42.7 (34.6-50.7)	0.78 (0.60-1.02)
Death not from study cancer	RT	27	83.7 (76.5-90.9)	74.1 (64.5-83.8)	-
	RT + CT	41	78.5 (71.3-85.7)	65.6 (55.9-75.3)	1.30 (0.80-2.11)
Patients who had involved marging	in(s) and/or extrac	capsular extensi	on		
Death from any cause	RT	89	30.7 (22.0-39.4)	19.6 (11.5-27.7)	-
	RT + CT	91	42.5 (33.8-51.2)	27.1 (18.9-35.4)	0.76 (0.57-1.03)
Death from study cancer	RT	77	35.7 (26.4-45.1)	26.7 (17.1-36.2)	-
	RT + CT	67	53.4 (44.1-62.7)	37.4 (27.4-47.5)	0.66 (0.47-0.91)
Death not from study cancer	RT	12	82.7 (71.5-94.0)	69.8 (53.2-86.3)	-
	RT + CT	24	77.7 (68.5-87.0)	70.3 (59.5-81.2)	1.30 (0.65-2.61)

Abbreviation: CI = confidence interval.

* Overall survival.



Adjuvant treatment (High risk disease)

EORTC 22931

SCC, T3-4NO with negative margins, T1-2 N2-3 or high risk features (ENE, PNI, positive margins, vascular tumor embolism)

Radiotherapy (66 Gy in 30 Fx) vs RT+ concurrent Cisplatin (100 mg/m2 x3)



Figure 1. Kaplan–Meier Estimates of Progression-free Survival.

Patients assigned to combined therapy had higher rates of progression-free survival than those assigned to radiotherapy (hazard ratio for progression, 0.75; P=0.02).



Figure 2. Kaplan–Meier Estimates of Overall Survival.

Patients assigned to combined therapy had higher survival rates than those assigned to radiotherapy (hazard ratio for death, 0.70; P=0.04).



Adjuvant treatment (High risk disease)



FIGURE 1. Eligibility criteria in EORTC 22931 and RTOG 9501 trials. OP, oropharynx; OC, oral cavity; LN, lymph node; ECE, extracapsular extension.

Adjuvant Chemo RT

ECE and positive surgical margins
 Favor – III-IV, PNI, Level 4/5 LAD
 NO benefit – 2+ I AD with NO ECE



Adjuvant treatment / Cisplatin







Adjuvant treatment / Cisplatin

Combined postoperative radiotherapy and cisplatin for head and neck cancer • J. M. BACHAUD et al. 1001



Cisplatin became standard of care



Bachaud et al. J Radiation Oncology 1996

- 2 year loco-regional → cisplatin once every 3 weeks (73.1%) vs receive weekly cisplatin (58.5%) (HR, 1.76; 95% Cl, 1.11-2.79; P = .014).
- 3 weeks developed more severe acute toxicities, compared to patients randomized to receive weekly cisplatin (84.6% vs. 71.6%, respectively, P = .006). Hyponatremia, leukopenia, neutropenia





С 1.0 3-Weekly cisplatin arm 0.9 Weekly cisplatin arm 0.8 **OS** (probability) 0.7 A DE REAL AND A DE REAL AND 0.6 0.5 0.4 0.3 HR 0.75 (95% Cl, 0.50 to 1.13) 0.2 One-sided P for noninferiority = .0035 0.1 3 5 6 8 0 1 2 4 7 9 Time Since Random Assignment (years) No. at risk: 3-Weekly cisplatin arm 132 120 98 70 52 12 0 36 19 4 Weekly cisplatin arm 129 117 102 84 60 46 25 12 3 0



- 52 studies \rightarrow 4,209 patients
- RT doses 60-66 Gy post op and definitive 66-70 Gy
- Cisplatin 100 mg/m2 vs weekly 40 mg/m2 at least 6 doses.
- Insufficient data to demonstrate meaningful survival difference



Figure 2. Overall survival analysis comparing weekly and three-weekly cisplatin given concurrently with postoperative radiotherapy.



Figure 3. Overall survival analysis comparing weekly and three-weekly cisplatin given concurrently with definitive radiotherapy.

- Concert Trial Phase III non-inferiority RCT ORAL abstract ASCO 2022
- 278 patients \rightarrow 59% comprising of oropharyngeal malignancy.
- 78.6% in 3-weekly and 81.6% patients in weekly arm received ≥200 mg/m2 of cisplatin.
- Toxicity was found to be significantly higher in 3-weekly arm.
- Noninferiority margin of 10%, locoregional control rates at 2 years were 57.69% in 3-weekly arm and 61.53%



Neoadjuvant / Induction (IC)

- TAX 324 trial PF vs TPF (docetaxel, cisplatin, 5FU) = OS 30 months vs. 71 months, grade 3-4 neutropenia.
- TAX 323/EORTC 24971 Lower doses of 5FU (1 g/m2/d), less neutropenia but 2.3% treatment related deaths.

TPF standard of care for induction chemotherapy.

TOXICITY as high as 6% related to treatment data from RTOG 91-11 and febrile neutropenia 11% requiring GCSF support.



Neoadjuvant / Induction (IC)

- IC can also compromise completion of subsequent CRT as noted on Spanish phase III trial → Cisplatin 100 mg/m2 = 49.5% vs 80.5%
- PARADIGM trial, <u>did not show any difference in OS</u> (HR 1.09; 95% CI 0.59–2.03), nor in PFS (HR 1.07; 95% CI 0.59–1.92) when comparing IC + CRT vs. CRT alone.
- DECIDE (limit N2 -N3 disease) low power trial (47 patients) with uptrend to OS benefit.

**IC as effective treatment in resectable locally-advanced laryngeal and hypopharyngeal cancer, with the aim of organ preservation, patients less than stage T4a disease candidate to total laryngectomy
 Px can be managed with sequential or concurrent CRT, with surgery as a secondary salvage option

Hitt et al, Ann Oncology 2014 Haddad et al. Lancet 2013 Cohen et al. JCO 2014



Recurrent / Metastatic disease

- Where is the recurrence? Is surgery vs re-irradiation an option? Second primary?
- NGS (NTRK fusions, CDKN2A, PIK3CA, EGFR amplification)
- Clinical trial enrollment
- CPS score
- Performance status
- Platinum-refractory? (<6 months since completion of chemo)
- Contraindications to immunotherapy?



• Phase 3, multicenter RCT – Pembrolizumab vs P/C/5FU vs Cetuximab/Platinum/5FU

	Pembrolizumab alone vs cetuximab with chemotherapy		Pembrolizumab wit cetuximab with che	th chemotherapy vs motherapy*
	Pembrolizumab alone (n=301)	Cetuximab with chemotherapy (n=300)	Pembrolizumab with chemotherapy (n=281)	Cetuximab with chemotherapy (n=278)
Age (years)	62-0 (56-0-68-0)	61.0 (54.5-68.0)	61.0 (55.0-68.0)	61.0 (55.0-68.0)
Sex				
Female	51 (17%)	39 (13%)	57 (20%)	36 (13%)
Male	250 (83%)	261 (87%)	224 (80%)	242 (87%)
Region of enrolment				
Europe	87 (29%)	105 (35%)	88 (31%)	94 (34%)
North America	75 (25%)	62 (21%)	60 (21%)	59 (21%)
Rest of world	139 (46%)	133 (44%)	133 (47%)	125 (45%)
ECOG performance st	atus score			
0	118 (39%)	117 (39%)	110 (39%)	108 (39%)
1	183 (61%)	183 (61%)	171 (61%)	170 (61%)
Smoking status				
Current or former	239 (79%)	234 (78%)	224 (80%)	215 (77%)
Never	62 (21%)	64 (21%)	57 (20%)	61 (22%)
Unknown	0	2 (<1%)	0	2 (<1%)
Oropharyngeal p16 positive	63 (21%)	67 (22%)	60 (21%)	61 (22%)
Tumour cells with PD	-L1 expression			
≥50%	67 (22%)	66 (22%)	66 (23%)	62 (22%)
<50%	234 (78%)	234 (78%)	215 (77%)	216 (78%)
PD-L1 CPS				
≥1	257 (85%)	255 (85%)	242 (86%)	235 (85%)
≥20	133 (44%)	122 (41%)	126 (45%)	110 (40%)

Disease status				
Metastatic	216 (72%)	203 (68%)	201 (72%)	187 (67%)
Recurrent only†	82 (27%)	94 (31%)	76 (27%)	88 (32%)
Newly diagnosed, non-metastatic	3 (1%)	3 (1%)	4 (1%)	3 (1%)
Primary tumour loca	ation			
Hypopharynx	38 (13%)	39 (13%)	44 (16%)	36 (13%)
Larynx	74 (25%)	61 (20%)	46 (16%)	56 (20%)
Oral cavity	82 (27%)	91 (30%)	82 (29%)	84 (30%)
Oropharynx	113 (38%)	114 (38%)	113 (40%)	107 (38%)
Investigator's choice	of platinum for st	udy treatment‡		
Carboplatin	181 (60%)	170 (57%)	160 (57%)	156 (56%)
Cisplatin	120 (40%)	130 (43%)	121 (43%)	122 (44%)









Cetuximab 278 (0) 227 (1) 147 (2) 100 (2) 51 (19) 20 (40) 5 (51) 1 (54) 0 (55) 0 (55) 110 (0) 91 (0) 60 (1) 40 (1) 26 (1) 19 (2) 11 (4) 4 (8) 1 (11) 0 (12) 0 (12) with chemotherapy



- Pembrolizumab vs P/P/5FU → first-line treatment for patients with recurrent or metastatic HNSCC with a CPS ≥ 1
- ~RR single agent Pembrolizumab 20%
- P/P/5FU → first-line treatment for patients with recurrent or metastatic HNSCC with a CPS < 1
- Clinical picture? Time to achieve response? Tumor burden?



Treatment landscape R/M HNSCC

First Line		PD1 Monotherapy	PD1 + Chemotherapy	
		 PDL1 + disease CPS score 1 & >20 	PDL1 – or unknown High tumor burden or rapid response is needed.	
	ς.	No standard of care		
Second Line		Depends on first line therapy.Performance status		
		 No previous PDL1 → PD-1 Single agent vs doublet che EGFR naïve → Cetuximab/ 	emotherapy	

Third Line



No standard of care

- Depends previous lines of therapy.
- Likely single agent chemotherapy



ASCO 2023 – New treatments



Dose expansion results of the bifunctional EGFR/TGF β inhibitor BCA101 with pembrolizumab.

- R/M HNSCC (oral cavity, oropharynx, hypopharynx and larynx)
- \checkmark CPS > or equal 1.
- ✓ No prior systemic therapy.
- \checkmark Stage 1 \rightarrow 18 patients , >4 responses required to proceed stage 2.
- ✓ Stage 2 → 21 patients (total 39).



• BCA101 mechanisms of actions:

TGF-b inhibitor (trap) to the tumor microenvironment through EGFR directed approach.

Increase antitumor activity via ADCC and increased NK cell activation.

Dual inhibition of EGFR and TGF-B prevents epithelial-mesenchymal transition and metastasis.



AEs, treatment-related, in ≥10% of subjects, preferred term & grade

			N = 33 (100%)	
	Age	Median (range)	65 (31-80)	ects (two G3 events)
	Sex – n (%)	Male/Female	23/10 (70% vs. 30%)	
		Oropharynx	18 (55%)	geable without the
		HPV-pos	12 (67% of Oropharynx)	nemorrhage
	HNSCC Primary site of	HPV-neg	6 (33% of Oropharynx)	
	disease	Oral Cavity	10 (30%)	
Aspartate		Hypopharynx	3 (9%)	action
		Larynx	2 (6%)	
	CPS - n (%)	≥20	15 (45%)	e increased
Blood thyroid stir		1-19	18 (55%)	
	Distant metastasis	s – n (%)	25 (76%)	3 (9%)
	ECOG Performance Stat	us – 0 vs.1 (%)	16 vs. 17 (48% vs. 52%)	
0 2 4 6 8 10 12 14 16 18 20 22 24 Total n=33				



Preliminary Efficacy – Total population (N=31 evaluable)



15/31 (48%) 1 (3%) CR 14 (45%) SD 8 (26%) PD 8 (26%)





> ORR 65% in HPV-neg subjects with responses observed in both CPS subgroups

2/11 (18%)

0/6 (0%)

2/5 (40%)



Slides images from ASCO2023 Abstract presentation. Hanna et al.

<u>Discussion</u>

ORR 48%, HPV negative ORR 65%.

CPS 1-19 (5/10, 50%) & CPS >20 (8/10, 80%)

mPFS HPV negative NR (1.3-14.6, at least 6.6 months)

- Combination warrants larger analysis in randomized study specifically HPV negative population.
- Durvalumab/cetuximab (II) ORR 39% vs Pembrolizumab cetuximab (II) ORR 45%



1. Gulati et al. Durvalumab plus cetuximab in patients with recurrent or metastatic head and neck SCC: An open label, nonrandomized, phase II clinical trial. Clin Cancer Res (2023) 29 (10): 1906–1915.

2. Sacco et al. Pembrolizumab plus cetuximab in patients with recurrent or metastatic head and neck SCC: an open label, multi-arm, non-randomized, multicenter, phase 2 trial. Lancet Oncology June 2021, Volume 22, Issue 6, P 883-892

Abstract 6083 – Combined Pulse Radiotherapy + ICI

- Combination of "Quad shot" with ICI to enhance immune response for elderly patients ineligible for curative intent therapy.
- Advance cutaneous or mucosal SCC
- 33 patients → mean age of 81
- Pulse dose QUAD shot delivered to gross disease excluding elective nodal disease(45 59 Gy) spaced 3 weeks + Pembrolizumab or Cemiplimab.

Characteristic	n (%) or mean (SD)
Male, n (%)	20 (60.6%)
Age, mean (SD)	81.27 (8.57)
KPS, n (%)	
50	1 (3.0%)
60	12 (36.4%)
70	18 (54.5%)
80	2 (6.1%)
ECOG, n (%)	
1	3 (9.1%)
2	25 (75.8%)
3	5 (15.2%)

Pathology = SCC, n (%)	25 (75.8.%)
TNM, n (%)	
Recurrent	8 (24.2%)
T0N2M0	2 (6.1%)
T2N0M0	1 (3.0%)
T2N1M0	2 (6.1%)
T2N2M0	4 (12.1%)
T3N0M0	3 (9.1%)
T3N1M0	1 (3.0%)
T3N2M0	2 (6.1%)
T3N2M1	2 (6.1%)



Abstract 6083 – Combined Pulse Radiotherapy + ICI

- Median OS with combination \rightarrow <u>17 months vs 5.7</u> compared to previous series of QUAD
- DFS 1 year 59% , 2 years 37%

LRC 61% 1 year and 55.5% 2 years.

• G3/4 = 9% (3/33) Colitis, fatigue, infusion

Figure 1. Kaplan-Meier Curve for Overall Survival (N= 33)







Slides images from ASCO2023 Poster session. J. De Los Santos

Abstract 6003 – Frail Immune

- Phase II FRAIL-IMMUNE trial evaluating the efficacy and safety of durvalumab combined with weekly paclitaxel carboplatin in first-line in patients with (R/M SCCHN). (GORTEC 2018-03)
- Objective : Efficacy and tolerance of PDL-1 inhibition (durvalumab) combined with weekly carboplatin (AUC2) + Paclitaxel as first line for patients R/M ineligible for cisplatin
- Prospective, multicenter, single arm phase II, N=64 patients
- Primary End Point: OS at 12 months
- Secondary End Points: PFS, ORR, DoR, QoL.



Abstract 6003 – Frail Immune

Patients an	nd disease characteristics	(N=64)	
	Female	6	(9.4%
Sex	Male	58	(90.6%
Age	Median (min; max)	69.5 (54.0; 90.0)	
	0	24	(37.5%
ECOG	1	40	(62.5%
	Oral cavity	9	(14.1%)
	Oropharynx	24	(37.5%)
Localization of the primary tumor	Hypopharynx	11	(17.2%)
	Larynx	18	(28.1%)
	Isolated cervical lymphnodes, unk primary site	2	(3.1%)
	Primary metastatic	5	(7.8%)
Status of the disease at inclusion	Metastatic only, recurrence	19	(29.7%)
	Locoregional only, recurrence	26	(40.6%)
	Primary locoregional and metastatic	1	(1.6%)
	Locoregional and metastatic recurrence	13	(20.3%)
	Missing	8	
PDL1	<1	13	(23.2%)
PDLI	>=1	43	(76.8%)
	>=20	17	(30.4%)
	Missing	4	
HPV (oropharynx)	Negative	11	(55.0%)
	Positive	9	(45.0%)

Criteria for Cisplatin ineligibility
Older than 70 years old (N=30)
Creatinine clearance: 40< Creat Cl <60ml/min (N=18)
Comorbidities (N=18)

Abstract 6003 – Frail Immune trial



Abstract 6003 – Frail Immune trial

<u>Discussion</u>

Durvalumab plus weekly Carboplatin (2AUC) + Paclitaxel (80 mg/m2) could serve as a potential option for cis-ineligible patients.

?KEYNOTE-B10 (ESMO 2022) → Pembrolizumab+Carboplatin + Paclitaxel (3 weekly). ORR 43%, PFS 5.6 months and OS 12.1.

Weekly schedule administration.



Not everything is chemo...

- Importance of psychosocial support during and after treatment.
- Nutritionist, Physical therapy, Speech pathologist.
- Pharmacist and Nurse navigators.
- Support groups.
- Smoking and alcohol cessation programs.
- Pain management.





Take home points

- Highlight importance of H/N multidisciplinary team to provide best treatment modalities.
- Addition of adjuvant cisplatin on patients with positive margins and ENE. Consider with PNI, LVI.
- 3 week vs once a week Cisplatin efficacy is similar, decrease incidence of side effects.
- IC is not recommended due to side effects and lack of OS/PFS benefits.
- Pembrolizumab for R/M H/N based upon CPS score, if low or high tumor burden, add chemo/IO.



Questions?



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