

Induction Chemotherapy for Locally Advanced Head and Neck Squamous Cell Carcinoma

Case presentation

59M, previously healthy. Heavy smoker, quit a couple of months ago.

6 weeks of progressive facial pain.

Seen by local doctors, given antibiotics for a presumed sinus infection.

Purulent drainage.

Dentures stopped fitting.

Face started to go numb.

Admitted, biopsied.

Nasopharyngeal SCC, nonkeratinizing, discharged home.

Case presentation

Exam

Swollen left eye

Numb left cheek and lips

Labs

mild anemia, mild leukocytosis, BMP and LFTs fine,
really nothing interesting

Imaging

Similar case on Radiopaedia:

[https://radiopaedia.org/cases/59258/studies/66600?
lang=us](https://radiopaedia.org/cases/59258/studies/66600?lang=us)

Questions

What is induction? (What is the difference between induction and neoadjuvant therapy?)

When is induction a good idea?

When is it a bad idea?

Why are the surgeons always asking us to induce new H&N diagnoses in-house?

What regimens are available/have been studied?

How do I select a regimen for a given patient and situation?

induction chemotherapy (ICT) through the ages

1960s

MTX

1970s

MTX vs cisplatin (response rate 14-41%)

cisplatin+bleomycin

cisplatin+bleomycin+[MTX vs vinca]

cisplatin+bleomycin+vincristine response rate
80%, CR 29%

cisplatin+5-FU (PF)

ICT through the ages

1980s

5x RCT w MTX - 4/5 -ve, 1/5 +ve only for stage II oral cavity disease (and used intra-arterial MTX)

many other RCTs, no benefit (outside of limited stage oral cavity disease)

1990s

Concurrent Cisplatin-based chemoRadioTherapy (CCRT)

Table 11.2 Summary of the meta-analysis of the MACH-NC collaborative Group [27, 28]

Trial category	No. of trials	No. of patients	Absolute benefit at 5 years	Risk reduction	P value
All trials	65	10,850	4%	10%	<0.0001
Adjuvant	8	1854	1%	2%	0.74
Induction	31	5269	2%	5%	0.10

ICT through the ages

2000s

PF vs TPF

European study (TAX323) had RT afterward,
American Study (TAX324) had CCRT afterward.

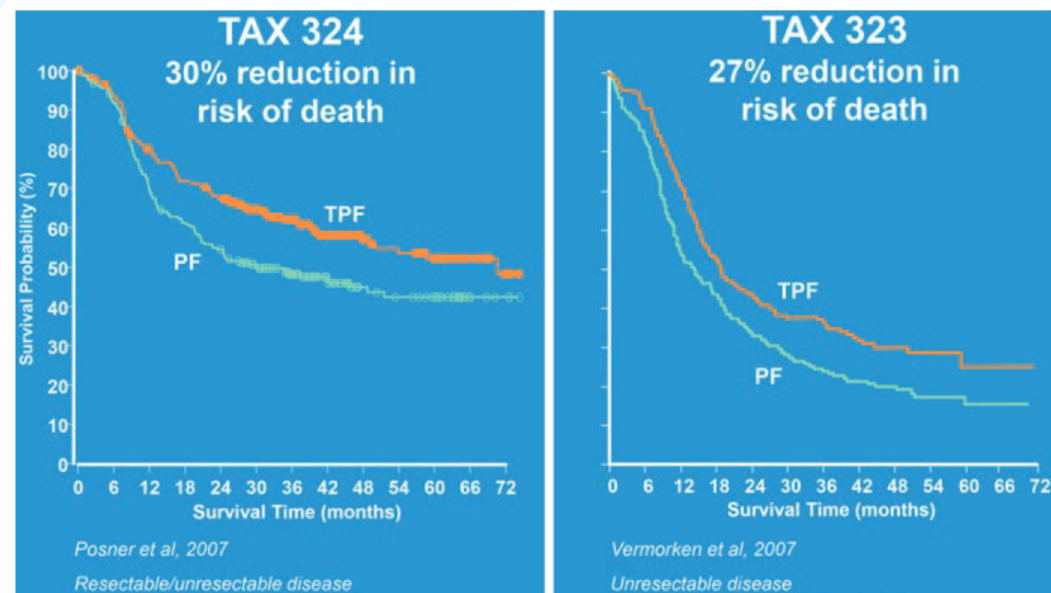


Fig. 11.2 Landmark trials of TPF versus PF in locoregionally advanced HNSCC

ICT through the ages

2000s

ICT + CCRT vs CCRT alone

OS doesn't increase, toxicity does

Table 11.6 Randomized trials of induction chemotherapy followed by concurrent chemoradiotherapy versus concurrent chemoradiotherapy alone in patients with locoregionally advanced HNSCC				
Investigators/Trial	Population	Regimens	Survival↑	Tox↑
Hitt et al/TTCC [53]	439 pts, stage III/IV	TPF (or PF) _{x3} →CCRT(P)	No	Yes
	Prim. endpoint: PFS	CCRT (cisplatin)		
Haddad et al/ PARADIGM [54]	145 pts, N2 and N3	TPF _{x3} →CCRT (C or Doce)	No	Yes
	Prim. endpoint: OS	CCRT (cisplatin)		
Cohen et al/DeCIDE [55]	285 pts, N2 and N3	TPF _{x2} →CCRT (THF)	No	Yes
	Prim. endpoint: OS	CCRT (THF)		
Ghi et al./GSTTC [56]	421 pts, stage III/IV	CCRT(PF) w/wo prior TPF	Yes ^a	Yes ^b
	Prim. endpoint: OS	BRT(cet.) w/wo prior TPF		
Geoffrois et al./GORTC 2007-02 [57]	370 pts, N2b/c, N3	TPF _{x3} →BRT (cetuximab)	No	Yes
	Prim. endpoint: 2-yPFS	CCRT (carbo/5-FU)		

nuanced (locoregional vs distant recurrence)

ICT through the ages

2010s

Rise of the mods:

- modified TPF (dose reduced)

- weekly carbo-taxol followed by CCRT

- TPEX (cisplatin, docetaxel, cetuximab)

Our patient:

- docetaxel 75, cisplatin 75, q3wk x3 and reimage

ICT today

larynx preservation

CCRT not clearly better than ICT in pts who qualify for total laryngectomy but not partial - SALTORL trial is comparing ICT and CCRT head-to-head

treatment intensification

TPF+CCRT in the fittest patients?

converting borderline resectable to resectable

~30% conversion rate

selecting HPV+ OPSCC pt for RT dose reduction

significant improvement in morbidity

oligometastatic disease

shrink/eliminate distant sites, spot weld prn,

talking points that came up after the talk

gem-cis ICT with CCRT, study out of China, good results (h/t Cody Lebeck Lee - also v good question about generalizability given high EBV burden in Asian populations)

QUAD shot radiotherapy, highly targeted RT (h/t Dixon Dorand)

dental procedures wrt timing of RT, may need to start ICT to bridge until dental procedures are done plus ~2wks (h/t Ronak Mistry)

Resources

[HemOnc.org entry](#)

[NCCN Guidelines](#)

[PathologyOutlines](#)

[notes](#)

Bibliography

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