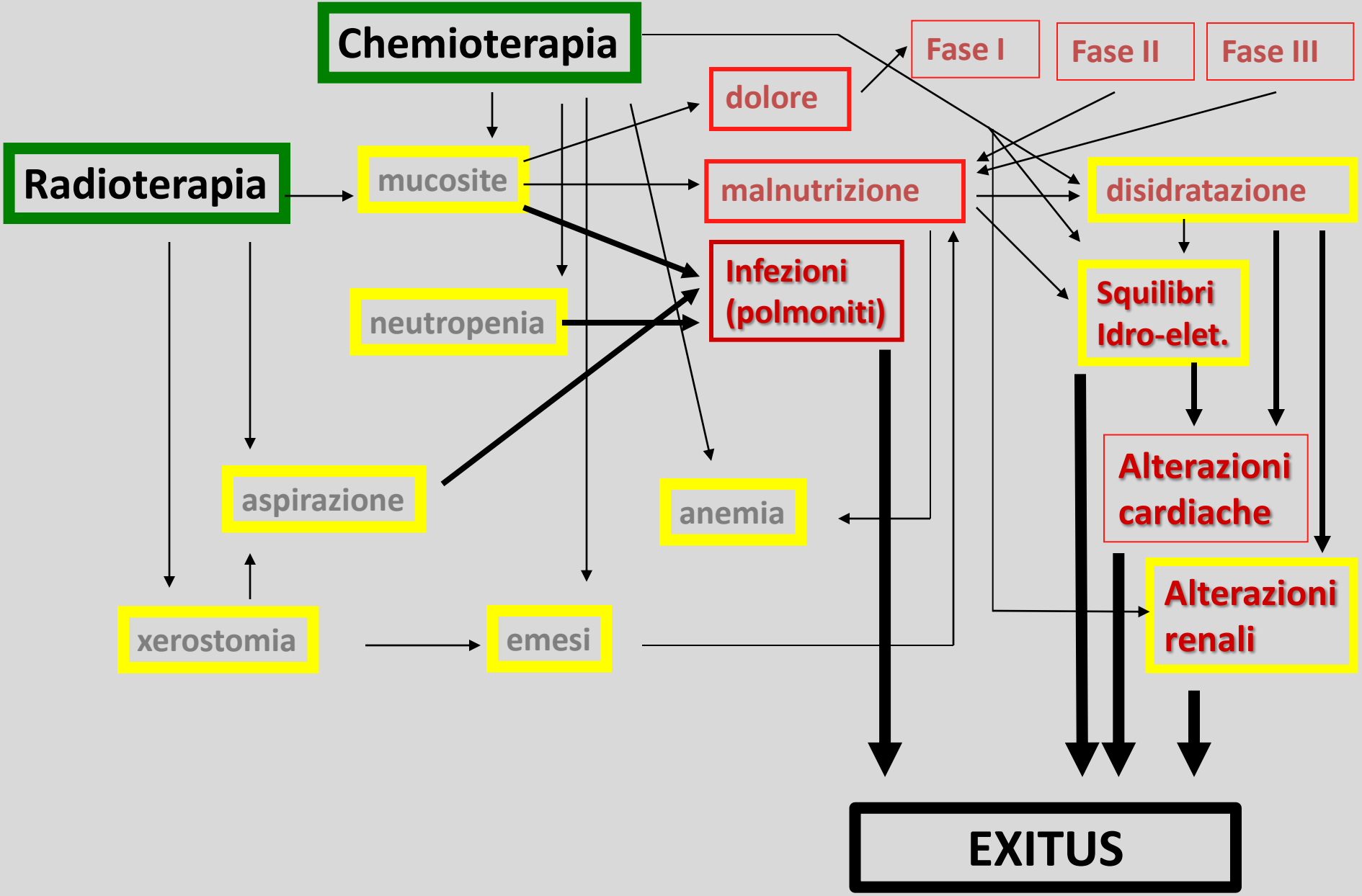
Attualità nella terapia integrata locoregionale delle neoplasie delle vie aeree digestive superiori
Taranto 12-14 gennaio 2012

Attualità in Oncologia Medica

La gestione della tossicità

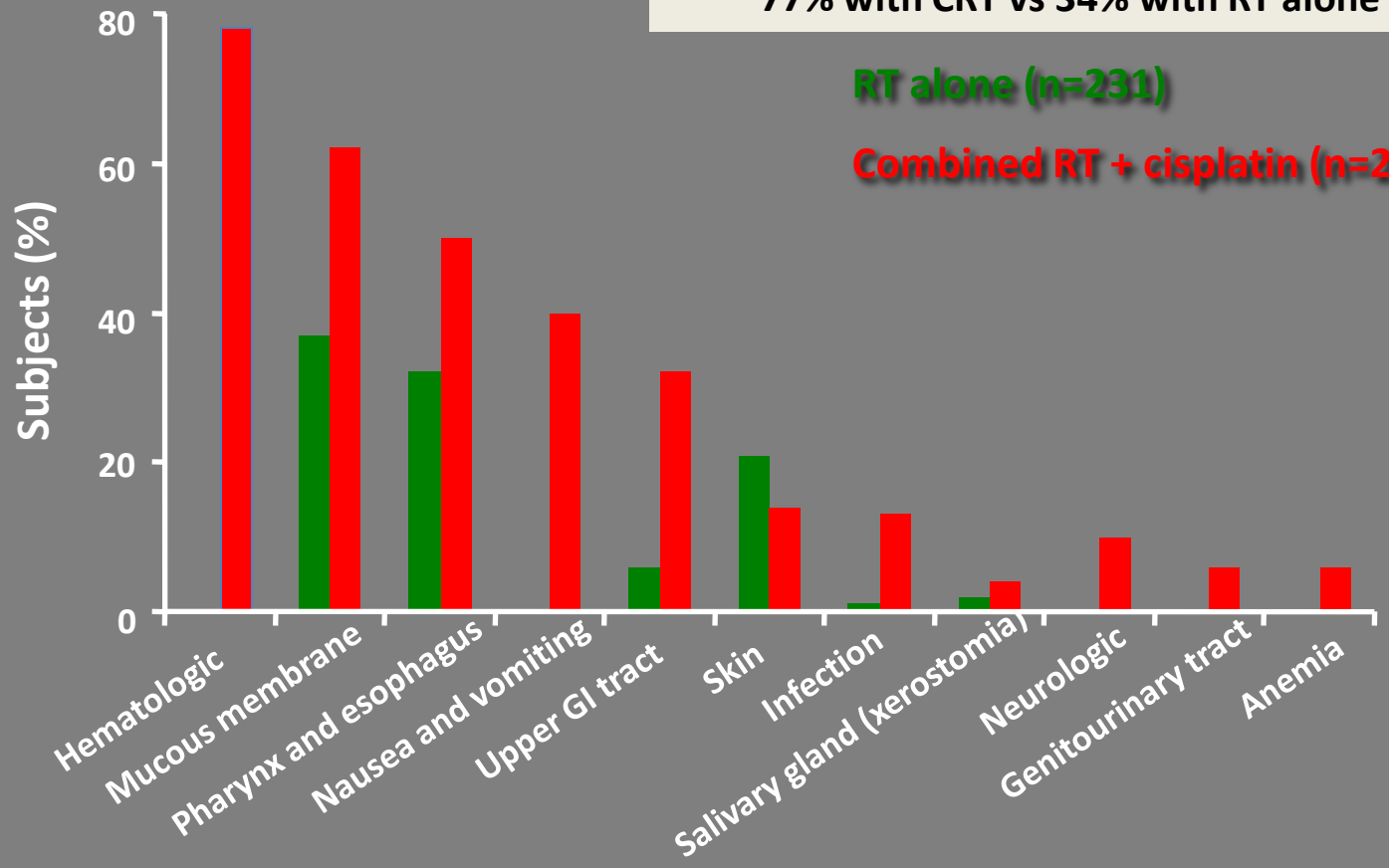
Marco Merlano

ASO S. Croce e Carle


Chemioterapia
Radioterapia
mucosite
dolore
malnutrizione
Infezioni (polmoniti)
neutropenia
aspirazione
anemia
xerostomia
emesi
Fase I
Fase II
Fase III
disidratazione
Squilibri Idro-elet.
Alterazioni cardiache
Alterazioni renali
EXITUS

Chemoradiation significantly increases acute toxicity

Acute adverse effects: grade 3 or higher
77% with CRT vs 34% with RT alone (p<0.001)



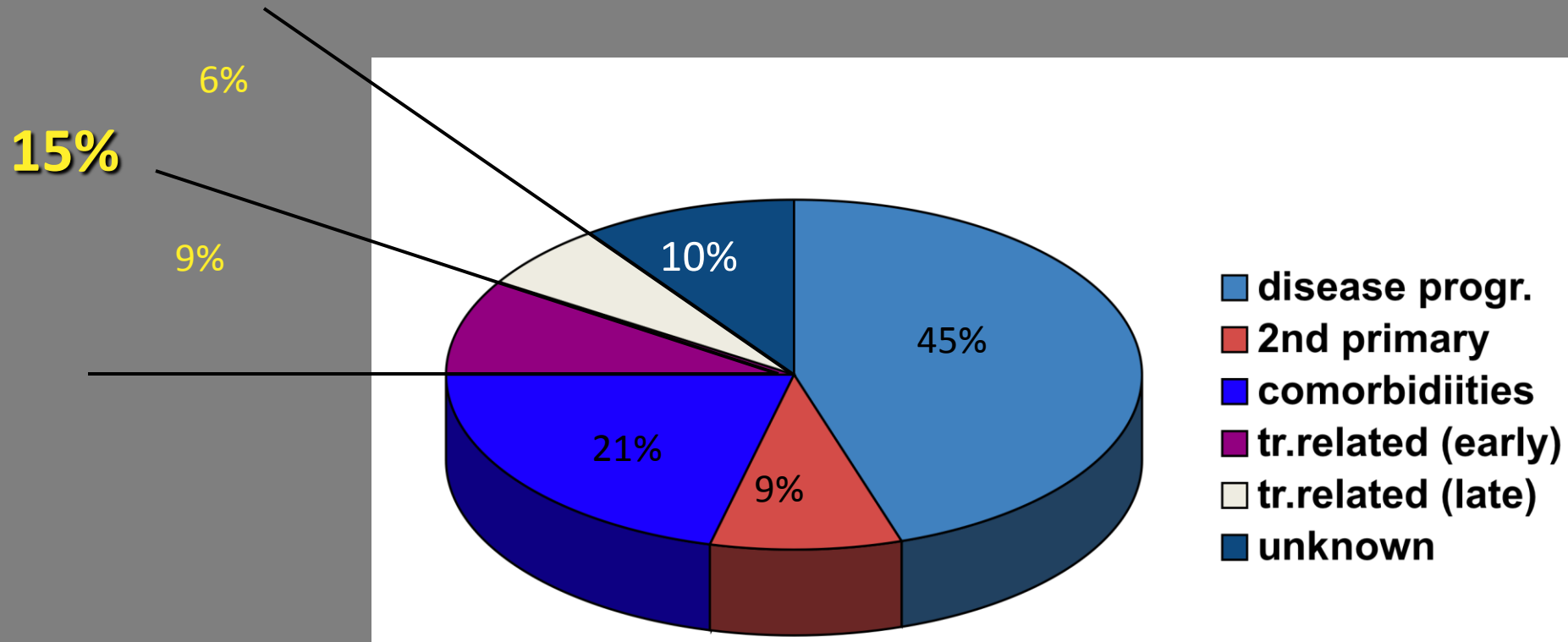
Cooper JS, et al. N Engl J Med 2004;350:1937–1944

Adelstein DJ et al; J. Clin. Oncol. 2003;21:92-98

The Intergroup trial	Standard radiotherapy	Standard radiotherapy + cisplatin 100mg/m^2 q 3 wks
All grade III-V toxicities	50%*	90%*
Toxic deaths	2%	4.5%

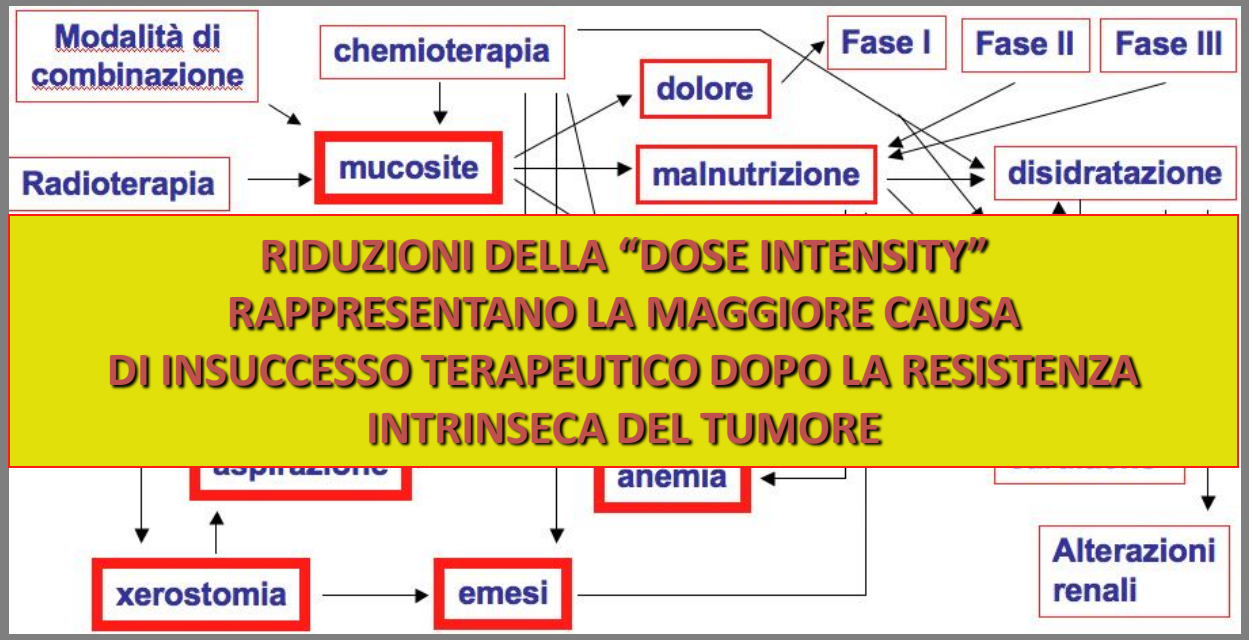
* = P<0.0001

Chemoradiation: percentage of treatment-related deaths after primary treatment



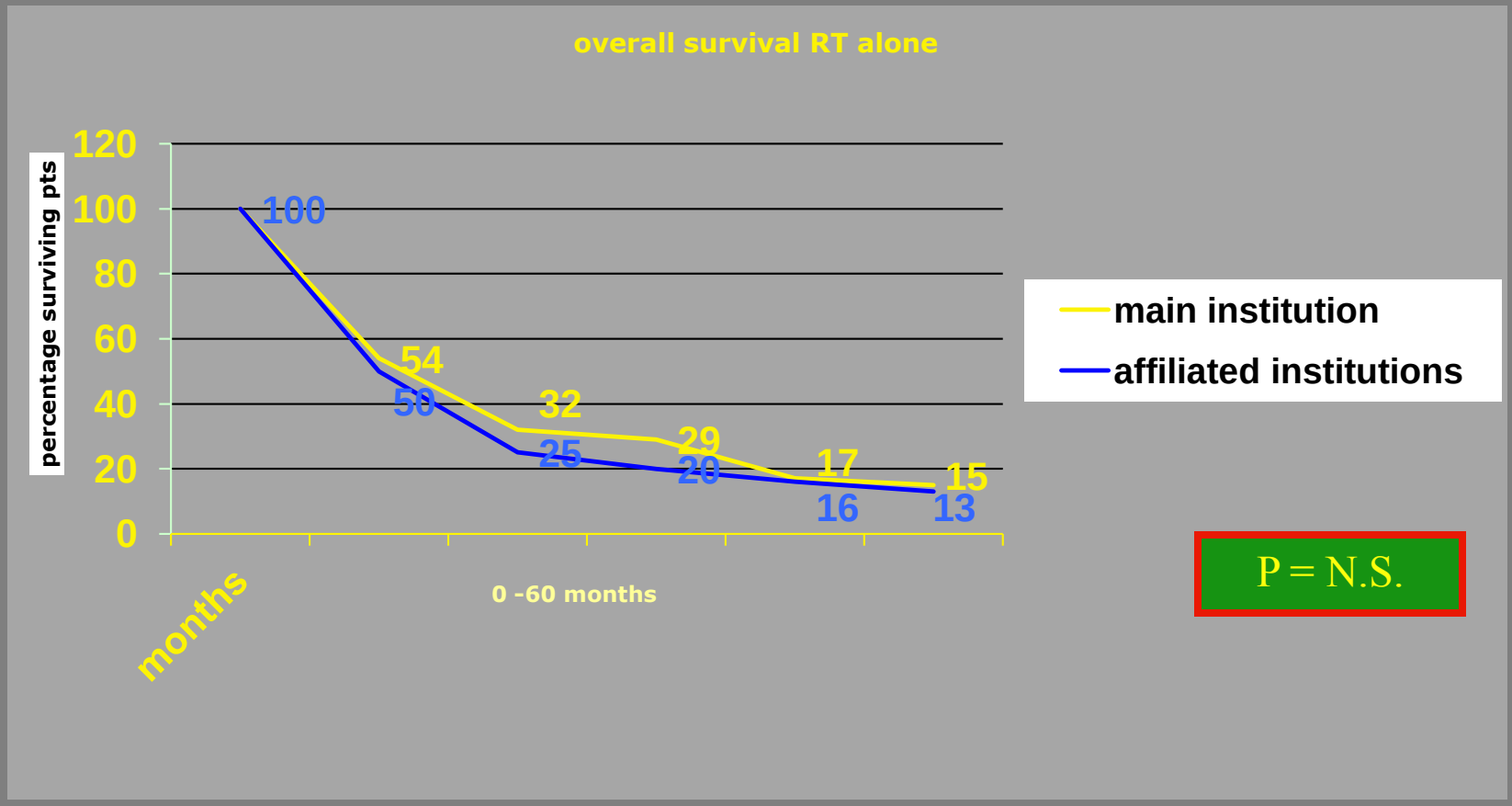
Argiris A, et al. Clin Cancer Res 2004;10:1956–1962

Management of toxicity



"Impact of the treating institution on the survival of patients with HNC treated with concomitant alternating chemotherapy and radiotherapy"

Benasso M et al: Eur J Cancer 2003;39:1895-1898



P = N.S.

"Impact of the treating institution on the survival of patients with HNC treated with concomitant alternating chemotherapy and radiotherapy"

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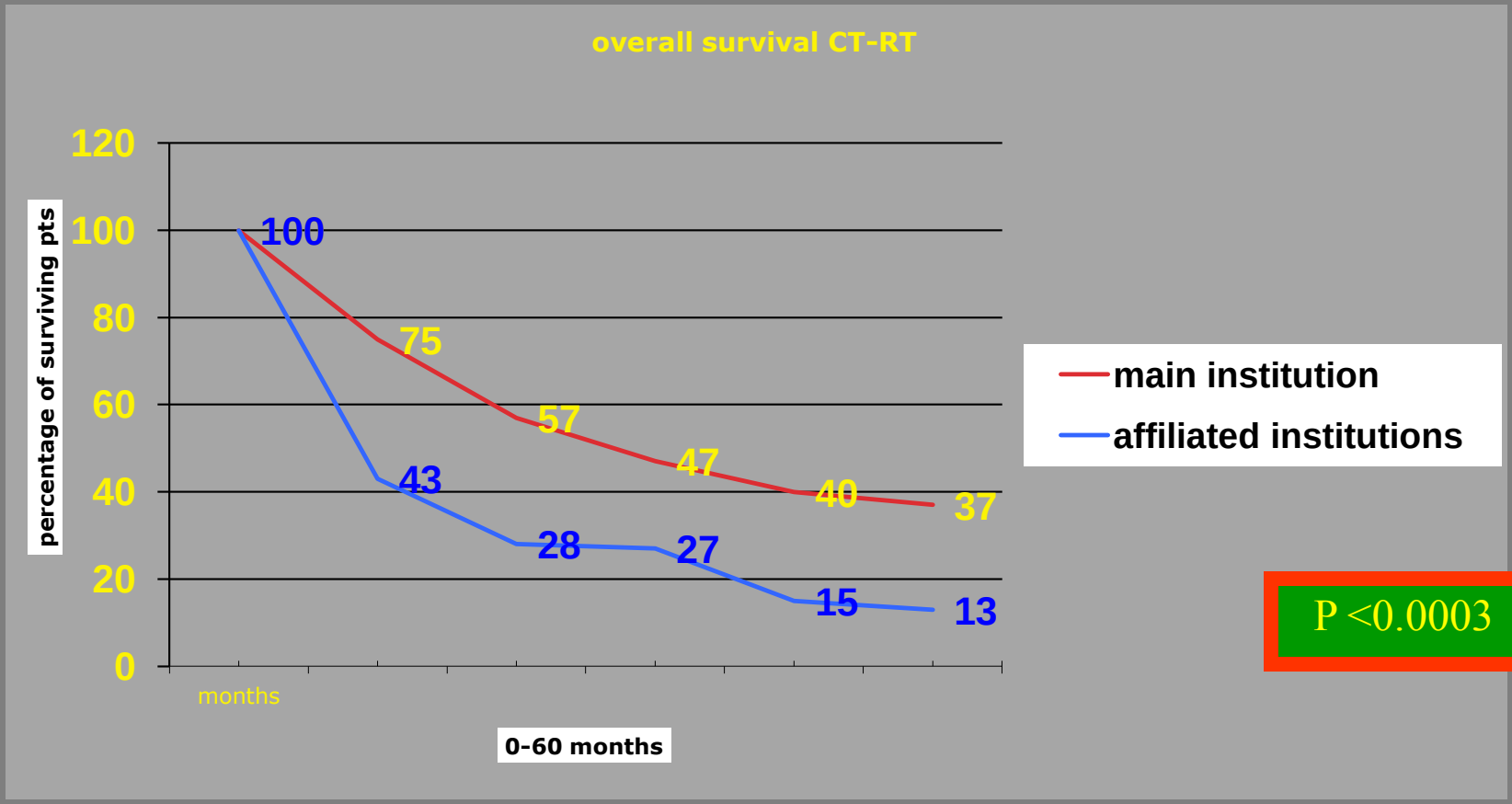


…and in the daily clinical practice?

Adverse Events Associated with concurrent chemoradiation therapy in patients with head and neck cancer

Givens DJ, Karnell LH, Gupta AK et al
Arch Otolaryngol Head Neck Surg 2009;135:1209-17

104 pts
treated between 2/2000 and 3/2007
< 65 yo 83.7%
≥ 65 yo 16.4%

Oropharynx	69.2%
Larynx	16.3%
Hypopharynx	3.8%

Stage IV	75.0%
Stage III	22.1%

IMRT	85.6%
2D	14.4%

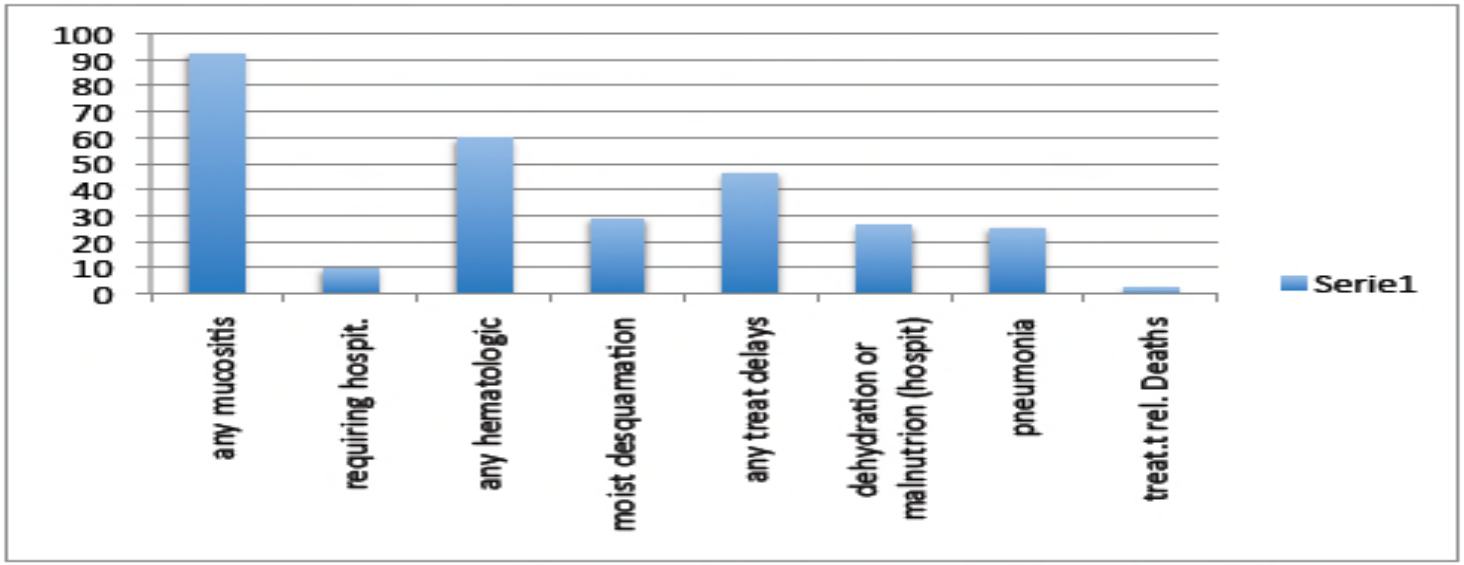
CisPT q 21	60.6%
CisPT weekly	33.7%
Other	5.8%

Adverse Events Associated with concurrent chemoradiation therapy in patients with head and neck cancer

Givens DJ, Karnell LH, Gupta AK et al

Arch Otolaryngol Head Neck Surg 2009;135:1209-17

any mucositis	92,3
requiring hospit.	9,6
any hematologic	59,6
moist desquamatio	28,8
any treat delays	46,2
dehydration or mal	26
pneumonia	25
treat.t rel. Deaths	1,9



The S. Croce General Hospital Experience

317 pts
treated between 11/1997 and 11/2008
< 65 yo 71%
≥ 65 yo 29%

Oropharynx	33.4%
Larynx	19.9%
Hypopharynx	24.6%
Oral cavity	12.6%
T 3-4	68.1%
N 2-3	74.5%

Adjuvant CRT	6.9%
NA-CT -> CRT	10.1%
Bio-RT	8.2%
Altern. CRT	74.8%

HPV-pos	14%
HPV-neg	84%
EGFR 3+	61.8%
EGFR 0-2+	38.2%

The S. Croce General Hospital Experience

Safety	Y	O	All pts	P-value
Stomatitis G3	87 (38.8%)	31 (33.3%)	118 (37.2%)	0.356 a
Stomatitis G4	57 (25.4%)	30 (32.3%)	87 (27.4%)	0.216 a
Diarrhoea >G1	7 (3.1%)	4 (4.3%)	11 (3.5%)	0.736 b
Thrombosis	4 (1.8%)	2 (2.2%)	6 (1.9%)	0.567 b
B.W. Loss	7.61% (SD±5.56)	6.66 (SD±4.51)		0.12 c
TPN	71 (31.7%)	38 (40.9%)	109 (34.4%)	0.11 a
PN/EN	8 (3.6%)	1 (1.1%)	9 (2.8%)	0.291 b
Neutropenia G3	45 (20.1%)	21 (22.56%)	66 (20.8%)	0.617 a
Neutropenia G4	23 (10.3%)	9 (9.7%)	32 (10.1%)	0.862 a
Anemia G3	29 (12.9%)	18 (19.4%)	47 (14.8%)	0.143a
Anemia G4	1 (0.4%)	0 (0%)	1 (0.3%)	0.707 b
Infections	35 (15.6%)	26 (28.0%)	61 (19.2%)	0.011 a
Pneumonia	5 (2.2%)	10 (10.8%)	15 (4.7%)	0.002 b
On-treatment deaths	8 (3.6%)	6 (6.5%)	14 (4.4%)	0.366 b

Y,young (age<65 years); O, old (age≥65 years); TPN, total parenteral nutrition; PN/EN,
parenteral and enteral nutrition.
a. Chi square Test; b. Fisher's Test; c. Student's T test

The S. Croce General Hospital Experience

Toxic Death.

Cause	All pts	Y	O
Bleeding	1	1	0
Sepsis	2	1	1
Pneumonia	7	3	4
Sudden Death	4	3	1

p = NS

Y,young (age<65 years); O, old (age≥65 years)

The S. Croce General Hospital Experience

Treatments Compliance.

Parameter	Y	O	All pts	P-value
Treatment delays ≥ 1 week	66 (29.5%)	21 (22.6%)	87 (27.4%)	0.21 a
Not completed treatment	9 (4.0%)	6 (6.5%)	15 (4.7%)	0.38 b
Not completed treatment (including on treatment deaths)	17 (7.6%)	12 (12.9%)	29 (9.1%)	0.20 a

Good treatment compliance:
Yong = 58.9%
Elderly = 61 %
Overall = 58.8%

Bonner 2006

Table 4. Adverse Events.*

Adverse Event	Radiotherapy Alone (N=212)		Radiotherapy plus Cetuximab (N=208)		P Value†	
	All Grades	Grades 3–5	All Grades	Grades 3–5	All Grades	Grades 3–5
	percent of patients					
Mucositis	94	52	93	56	0.84	0.44
Acneiform rash	10	1	87	17	<0.001	<0.001
Radiation dermatitis	90	18	86	23	0.24	0.27
Weight loss	72	7	84	11	0.005	0.12
Xerostomia	71	3	72	5	0.83	0.32
Dysphagia	63	30	65	26	0.68	0.45
Asthenia	49	5	56	4	0.17	0.64
Nausea	37	2	49	2	0.02	1.00
Constipation	30	5	35	5	0.35	1.00
Taste perversion	28	0	29	0	0.83	—
Vomiting	23	4	29	2	0.18	0.42
Pain	28	7	28	6	1.00	0.84
Anorexia	23	2	27	2	0.26	1.00
Fever	13	1	26	1	0.001	1.00
Pharyngitis	19	4	26	3	0.10	0.80
Dehydration	19	8	25	6	0.16	0.57
Oral candidiasis	22	0	20	0	0.63	—
Coughing	19	0	20	<1	1.00	0.50
Voice alteration	22	0	19	2	0.47	0.06
Diarrhea	13	1	19	2	0.11	0.50
Headache	8	<1	19	<1	0.001	1.00
Pruritus	4	0	16	0	<0.001	—
Infusion reaction	2	0	15	3	<0.001	0.01
Insomnia	14	0	15	0	0.89	—
Dyspepsia	9	1	14	0	0.13	0.50
Increased sputum	15	1	13	<1	0.78	0.62
Infection	9	1	13	1	0.28	1.00
Anxiety	9	1	11	<1	0.75	1.00
Chills	5	0	11	0	0.03	—
Anemia	13	6	3	1	<0.001	0.006

* Adverse events that occurred in at least 10 percent of patients in either treatment group are shown, regardless of cause.
† P values were determined with the use of Fisher's exact test.

Adverse Event	Radiotherapy Alone (N=212)		Radiotherapy plus Cetuximab (N=208)		P Value†	
	All Grades	Grades 3–5	All Grades	Grades 3–5	All Grades	Grades 3–5
	percent of patients					
Mucositis	94	52	93	56	0.84	0.44
Acneiform rash	10	1	87	17	<0.001	<0.001
Radiation dermatitis	90	18	86	23	0.24	0.27

Budach W NEJM 2007

International Journal of Radiation Oncology*Biology*Physics

Volume 69, Issue 2, 1 October 2007, Pages 638–639

Letters to the Editor

Ultrathin Hydrocolloid Dressing in Skin Damaged From Alternating Radiotherapy and Chemotherapy Plus Cetuximab in Advanced Head and Neck Cancer (G.O.N.O. AlteRCC Italian Trial): In Regard to Macmillan *et al.* (*Int J Radiat Oncol Biol Phys* 2007;68:864–872)

Elvio G. Russi, M.D.

Gruppo Oncologico Nord Ovest, Department of Radiotherapy, General Hospital "S. Croce e Carle", Cuneo, Italy

Marco C. Merlano, M.D.

Gruppo Oncologico Nord Ovest, Department of Oncology, General Hospital "S. Croce e Carle", Cuneo, Italy

Alberto Comino, M.D.

Department of Pathologic Anatomy, General Hospital "S. Croce e Carle", Cuneo, Italy

Gianmauro Numico, M.D.

Gruppo Oncologico Nord Ovest, Department of Radiotherapy, General Hospital "S. Croce e Carle", Cuneo, Italy

Available online 14 September 2007.

Bonner 2010

	Radiotherapy (N=212)			Radiotherapy plus cetuximab (N=208)		
	All grades	Grade 3/4	Grade 4	All grades	Grade 3/4	Grade 4
Skin reaction*	200 (94·3%)	45 (21·2%)	3 (1·4%)	204 (98·1%)	73 (35·1%)‖	4 (1·9%)
Mucositis/stomatitis†	199 (93·9%)	110 (51·9%)	9 (4·2%)	194 (93·3%)	116 (55·8%)	13 (6·3%)
Dysphagia	134 (63·2%)	63 (29·7%)	3 (1·4%)	136 (65·4%)	54 (26·0%)	1 (0·5%)
Xerostomia‡	150 (70·8%)	6 (2·8%)	0 (0%)	150 (72·1%)	10 (4·8%)	0 (0%)
Acneiform rash§	21 (9·9%)	3 (1·4%)	0 (0%)	174 (83·7%)‖	35(16·8%)‖	1 (0·5%)
Infusion reaction¶	4 (1·9%)	0 (0%)	0 (0%)	32 (15·4%)‖	6 (2·9%)‖	2 (1·0%)

*Skin reaction includes all Coding Symbols for a Thesaurus of Adverse Reaction Terms (COSTART) terms in the Skin and Appendages body system. †Mucositis/stomatitis includes COSTART terms aphthous stomatitis; gingivitis; glossitis; mouth ulceration; mucous membrane disorder; stomatitis; and ulcerative stomatitis. ‡Xerostomia is COSTART term dry mouth. §Acneiform rash includes COSTART terms acne; rash; maculopapular rash; exfoliative dermatitis. ¶Infusion reaction includes COSTART terms allergic reaction; anaphylactoid reaction; and/or fever; chills; or dyspnoea on the first day of treatment. ‖Statistically significant ($p<0·05$) difference between the treatment groups; Fisher's exact test.

Table 2: Most common adverse events

Radiation induced skin toxicity

Pathogenesis:

Ionising Radiation damages mitotic ability of clonogenic cells within the basal layer, thus preventing repopulation and weakening skin integrity.

Moist desquamation occurs when basal layer becomes unable to repopulate in time to replace the damage tissue.

This effect is evident at a cumulative dose of 20-25 Gy and the maximum depletion is observed at 50 Gy.

Archambeau JO et al: Pathophysiology of irradiated skin and breast. Int J Radiat Oncol Biol Phys 1995;30:1171-85

Factors influencing severity, onset and duration of skin reactions[1]

Areas of the body containing skinfolds (such as the neck)

Intrinsic factors
- General skin condition (photoaging)
- Nutritional status
- Age (chronoaging)
- Comorbid disease
- Ethnicity

Extrinsic factors
- Dose
- Energy
- Fractionation regimen
- Combination with chemotherapy
  - Doxorubicin, MTX, 5Fu, Hyd, BLM, Taxanes
  - (i.e. those able to induce radiation recall)

1) Wells M, McBride S: “Radiation skin reactions” in “Supportive care in radiotherapy” Faithfull S and Wells M Eds, pag 135-160; Churchill Livingstone, Edinburgh. Elsevier Science Ltd, 2003

EGFr

EGFr activation is the first response to skin injury:

- **It is involved in wound healing of the skin**
- **Acute disruption of permeability barrier stimulate epidermal proliferation via amphiregulin EGFr activation**
- **Sustained EGFr activation is a well established event in response to UVB exposure, and plays a crucial role in UVB induced epidermal hyperplasia**

EGFr plays a role in repair of radiation induced skin damage

"There is clear evidence that EGFR expression increases after RT, and it possibly plays a role as a mechanism for repopulating irradiated areas"

Peter RU et al: Increased expression of EGFR in human epidermal keratynocites after exposure To iomizing radiation. Radiat Res 1993;136:65-70

Application of specific inhibitor of EGFr ligand greatly retards re-epithelization by inhibition of keratinocyte migration

BLOCKADE OF EGFR SIGNALING DOES NOT INDUCE KERATINOCYTE CELL DEATH, RATHER, IT ENHANCES SUSCEPTIBILITY TO CELL DEATH INDUCTION

Exacerbates effects of other factors:
Microtrauma, UVB exposition, radiotherapy

Pastore S et al: The epidermal growth factor receptor system in skin Repair and inflammation. J. Investigative Dermatol. 2008;128:1365-74

So, it makes sense that EGFr inhibitors can exacerbate radiation-induced skin toxicity interfering with its repair

But, up to which extent?

Radiotherapy and Oncology xxx (2008) xxx–xxx

Contents lists available at ScienceDirect

Radiotherapy and Oncology

journal homepage: www.thegreenjournal.com

Original article

High rate of severe radiation dermatitis during radiation therapy with concurrent cetuximab in head and neck cancer: Results of a survey in EORTC institutes

Christian Giro [a], Bernhard Berger [b], Edwin Bölke [a], I. Frank Ciernik [c], Frederic Duprez [d], Laura Locati [e], Sophie Maillard [f], Mahmut Ozsahin [g], Raphael Pfeffer [h], A. Gerry Robertson [i], Johannes A. Langendijk [j], Wilfried Budach [a,*]

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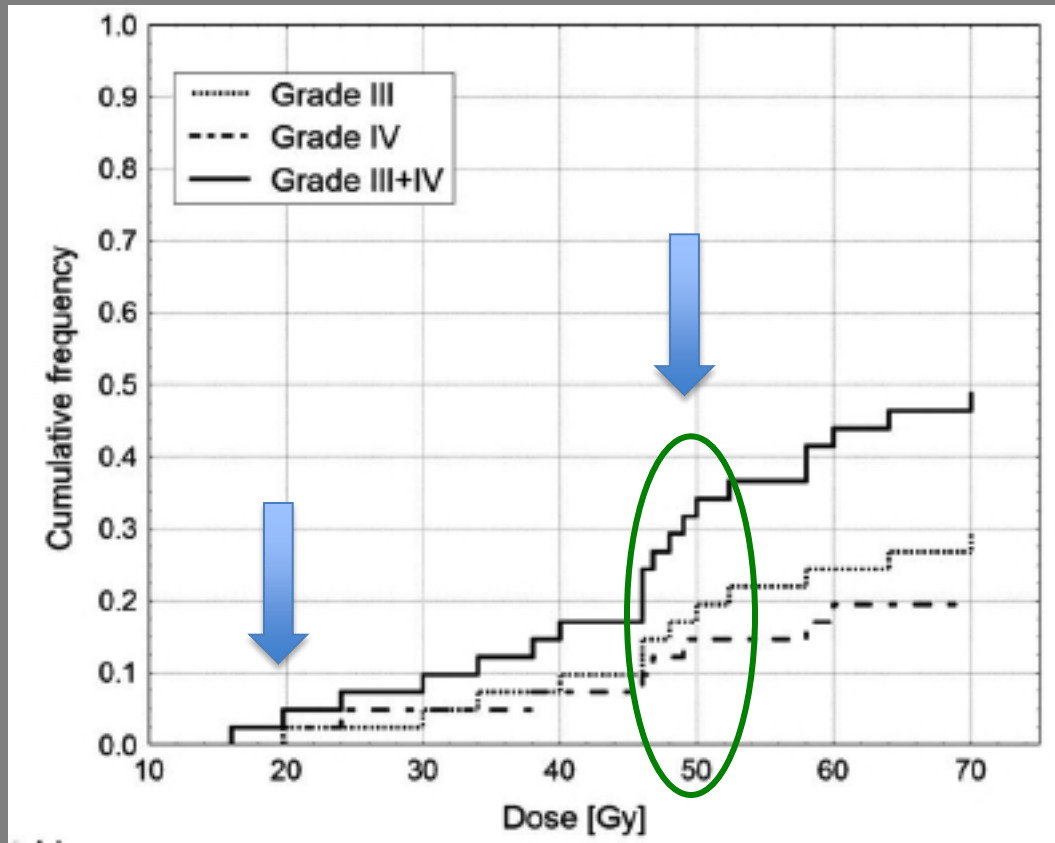
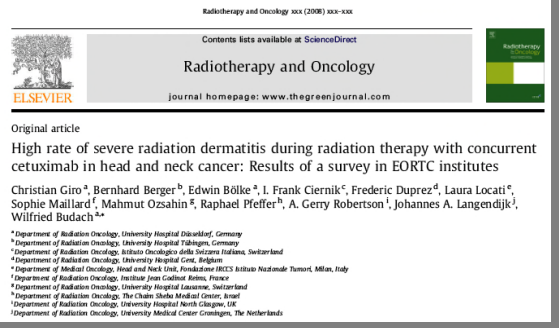
[i] Department of Radiation Oncology, University Hospital North Glasgow, UK
[j] Department of Radiation Oncology, University Medical Center Groningen, The Netherlands

Grade 3/4 incidence: ≈ 49%





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Radiation + cetuximab induced skin toxicity

The lowest total dose at which G 3/4 reactions were observed, were 16 and 20 Gy respectively. The steepest incline was seen between 46 and 54 Gy.

Radiation induced skin toxicity

This effect is evident at a cumulative dose of 20-25 Gy and the maximum depletion is observed at 50 Gy.

Archambeau JO et al: Pathophysiology of irradiated skin and breast. Int J Radiat Oncol Biol Phys 1995;30:1171-85

Enhanced toxicity with concurrent cetuximab and radiotherapy
In head and neck cancer

David I. Prior, Sandro V. Porceddu, Bryan H. Burmeister et al
Dept Radiation Oncology
Princess Alexandra Hospital
Australia

Radiotherapy Oncology 2008

13 pts: 77% G 3/4 skin reactions

All received standard fractionation RT

6 pts > 70 y.o.	**AGE**
12 pts skin actinic damage	**GENERAL SKIN CONDITIONS**
13 unsuitable for CT/RT	**CO-MORBIDITIES**

Factors influencing severity, onset and duration of skin reactions[1]

Areas of the body containing skinfolds (such as head and neck)

Intrinsic factors
- General skin condition (photoaging)
- Nutritional status
- Age (chronoaging)
- Comorbid disease
- Ethnicity

Extrinsic factors
- Dose
- Energy
- Fractionation regimen
- Combination with chemotherapy
  - Doxorubicin, MTX, 5Fu, Hyd, BLM, Taxanes
  - (i.e. those able to induce radiation recall)

1) Wells M, McBride S: “Radiation skin reactions” in “Supportive care in radiotherapy” Faithfull S and Wells M Eds, pag 135-160; Churchill Livingstone, Edinburgh. Elsevier Science Ltd, 2003

Increased Risk of High-Grade Dermatologic Toxicities With Radiation Plus Epidermal Growth Factor Receptor Inhibitor Therapy

Ajay Tejwani, MD[1], Shenhong Wu, MD[2], Yuxia Jia, MD[2], Mark Agulnik, MD[4], Laura Millender, MD[3], and Mario E. Lacouture, MD[5]

Cancer 2009

site	G 3/4 radio dermatitis	Tot n. of pts	cetuximab	erlotinib	gefitinib	panitumumab
HNC	98	616	569	29	10	8
Non HNC	0	309	261	48	0	0

Factors influencing severity, onset and duration of skin reactions[1]

Areas of the body containing skinfolds (such as the neck)

Intrinsic factors
- General skin condition (photoaging)
- Nutritional status
- Age (chronoaging)
- Comorbid disease
- Ethnicity

Extrinsic factors
- Dose
- Energy
- Fractionation regimen
- Combination with chemotherapy
  - Doxorubicin, MTX, 5Fu, Hyd, BLM, Taxanes
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[j] Department of Radiation Oncology, University Medical Center Groningen, The Netherlands

Merlano et al tested cetuximab in combination with alternating chemoradiation in HNSCC in a phase II trial… Eighteen of twenty patients developed a grade III/IV radiation dermatitis during the second course of radiotherapy (22-40 Gy). …**indicates that chemotherapy may further aggravate radiation induced skin toxicity.**

original article

Annals of Oncology
doi:10.1093/annonc/mdq412

Cisplatin-based chemoradiation plus cetuximab in locally advanced head and neck cancer: a phase II clinical study

M. Merlano[1*], E. Russi[2], M. Benasso[3], R. Corvò[4], I. Colantonio[1], R. Vigna-Taglianti[2], V. Vigo[3], A. Bacigalupo[4], G. Numico[5], N. Crosetto[1†], M. Gasco[1‡], C. Lo Nigro[1‡], R. Vitiello[6], S. Violante[7] & O. Garrone[1]

Departments of [1]Medical Oncology; [2]Radiation Therapy, S. Croce General Hospital, Cuneo; [3]Department of Medical Oncology, La Spezia General Hospital, La Spezia; [4]Department of Radiation Therapy, National Institute for Cancer Research, Genoa; [5]Department of Medical Oncology, Aosta General Hospital, Aosta; [6]Department of Otorhinolaryngology; [7]Clinical Trials Office, Department of Medical Oncology, S. Croce General Hospital, Cuneo, Italy

Received 2 December 2009; revised 11 March 2010; revised 7 May 2010; accepted 21 June 2010

Table 2. Treatment responses and toxicities

Response	45 evaluable patients					
Objective response rate, %	91.1%					
CR, *n* (%)	32 (71.1)					
PR, *n* (%)	9 (20)					
Failures, *n* (%)	4 (8.9)					
Grade	0	1	2	3	4	Total
Relative frequencies of observed acute toxic effects						
Haematological toxic effects, *n* (%)						
Leukopenia	12 (27)	1 (2)	14 (31)	17 (38)	1 (2)	45
Neutropenia	12 (27)	1 (2)	14 (31)	15 (33)	3 (7)	45
Grade 3–4 with fever				8	8	
Anaemia	13 (29)	12 (27)	16 (35)	4 (9)	0	45
Thrombocytopenia	26 (58)	5 (11)	7 (16)	6 (13)	1 (2)	45
Non-haematological toxic effects, *n* (%)						
Stomatitis	2 (4)	3 (7)	11 (24)	13 (29)	16 (36)	45
Dysphagia	38 (84)	0	4 (9)	3 (7)	0	45
Radiodermatitis	0	1 (2)	11 (24)	33 (74)	0	45
C225-induced rash	37 (82)	3 (7)	2 (4)	3 (7)	0	45
Diarrhoea	34 (76)	4 (9)	3 (7)	4 (9)	0	45
Alopecia	30 (67)	10 (22)	4 (9)	1 (2)	0	45
Peripheral neuropathy	44 (98)	1 (2)	0	0	0	45
Fatigue	6 (13)	18 (40)	20 (44)	1 (2)	0	45
Worse non-haematological toxicity				Stomatitis		
Worse overall toxicity				Stomatitis		

METHODS

TREATMENT

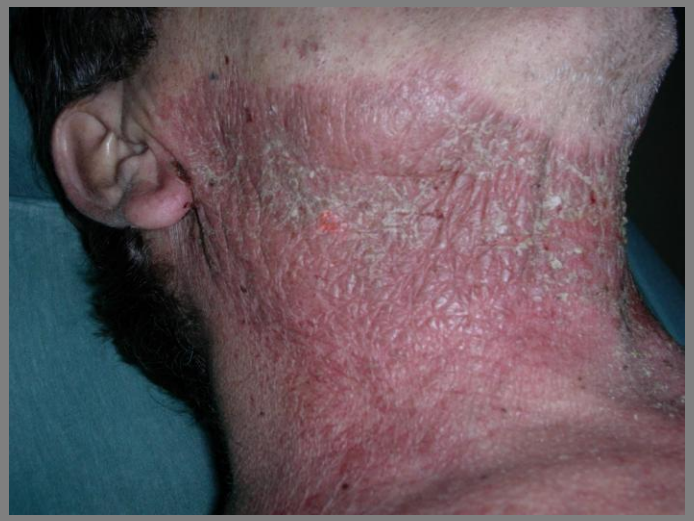
RAPIDLY ALTERNATING CT/RT[(1)] COMBINED WITH C-mab

Weeks	1	2	3	4	5	6	7	8	9	10
Chemotherapy	↑↑↑↑↑	--------	-------	↑↑↑↑↑	-------	-------	↑↑↑↑↑	-------	-------	-------
Radiotherapy	-------	↑↑↑↑↑	↑↑↑↑↑	-------	↑↑↑↑↑	↑↑↑↑↑	-------	↑↑↑↑↑	↑↑↑↑↑	↑↑↑↑↑
C-mab	↑------	↑------	↑-----	↑------	↑------	↑-----	↑------	↑-----	↑-----	↑-----

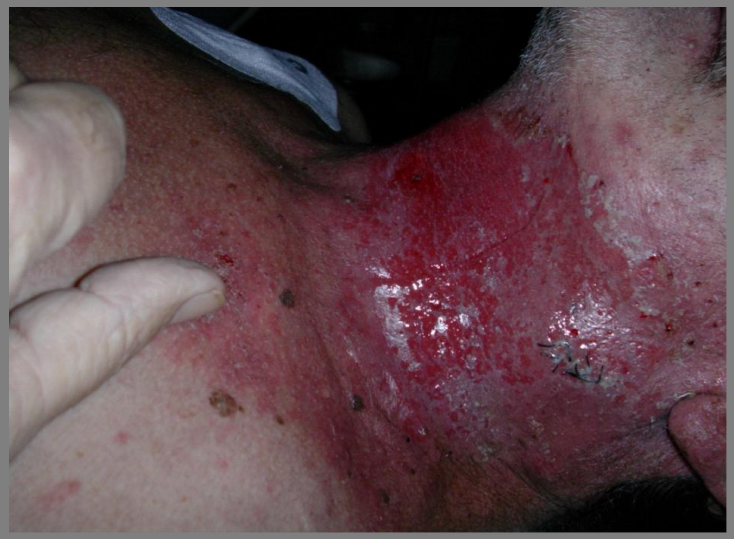
Chemotherapy: cisplatin, 20 mg/m^2/die, days 1 to 5; fluorouracil bolus i.v., 200 mg/m^2/die, days 1 to 5
Radiation: 200 cGy/die, 1 fraction per day, 5 fractions per week
C-mab: day 1 of each treatment week; 400mg/m^2 followed by 250mg/m^2 weekly during the whole treatment

(1): Merlano M. et al, J.Natl.Cancer Inst. 1996

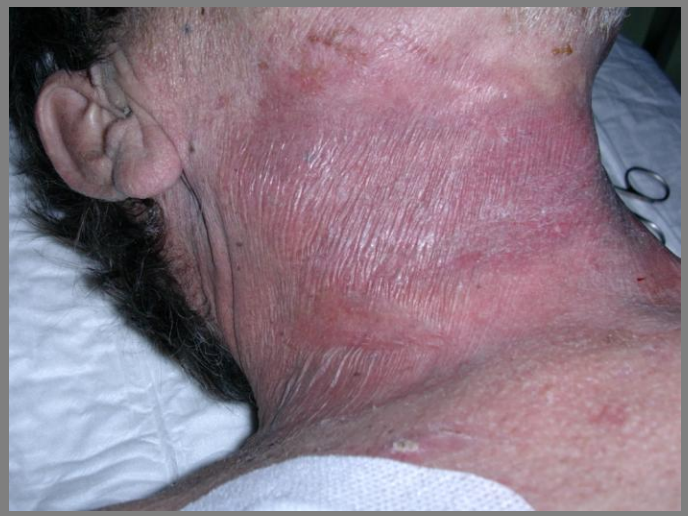
MAJOR TOXICITIES - LOCAL SKIN TOXICITY



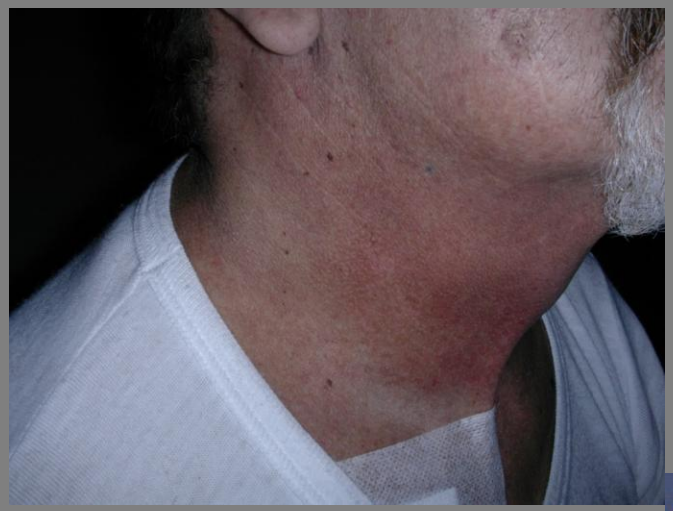
At 36 Gy



At 52 Gy



1 wk after
Treatment end



7 wks after
Treatment end

CONCLUSIONS

- *The combination of c-mab and alternating CT/RT adds an* **UNEXPECTED SKIN TOXICITY IN THE IRRADIATED FIELD (LOCAL SKIN TOXICITY)** *which is different from the c-mab induced skin rush*

- **THE LOCAL SKIN TOXICITY COMPLETELY RECOVERS AT THE END OF THE TREATMENT, CAN BE EFFICACIOUSLY MANAGED AND DOES NOT SIGNIFICANTLY IMPACT WITH TREATMENT FEASIBILITY**[1]

- *A possible negative interaction among* **RADIATION, FLUOROURACIL AND C-mab AT SKIN LEVEL,** *could account for the observed local skin toxicity.*

- **ACTIVITY:** *the response rate achieved, overcomes the statistical hypothesis (32 instead of 26 CRs required).*

1) Russi EG et al: Ultrathin hydrocolloid dressing in skin damaged from Alternating Radiotherapy and Chemotherapy plus Cetuximab in advanced head and neck cancer (G.O.N.O. AlteRCC italian trial). Int. J. Radiat. Oncol. Biol. Phys.2007 [letter]

Factors influencing severity, onset and duration of skin reactions[1]

Areas of the body containing skinfolds (such as the neck)

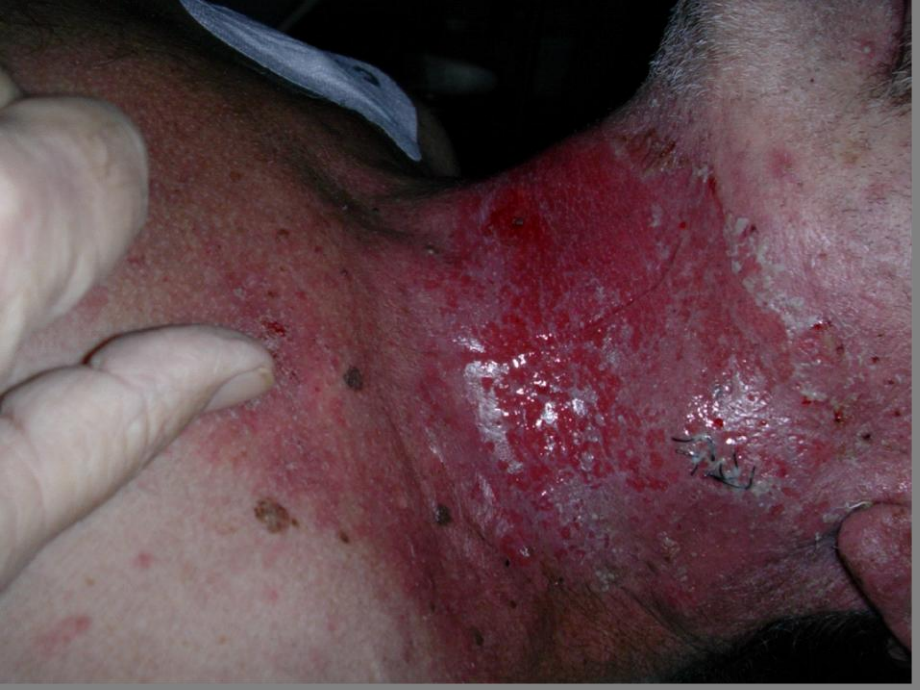
Intrinsic factors
- General skin condition (photoaging)
- Nutritional status
- Age (chronoaging)
- Comorbid disease
- Ethnicity

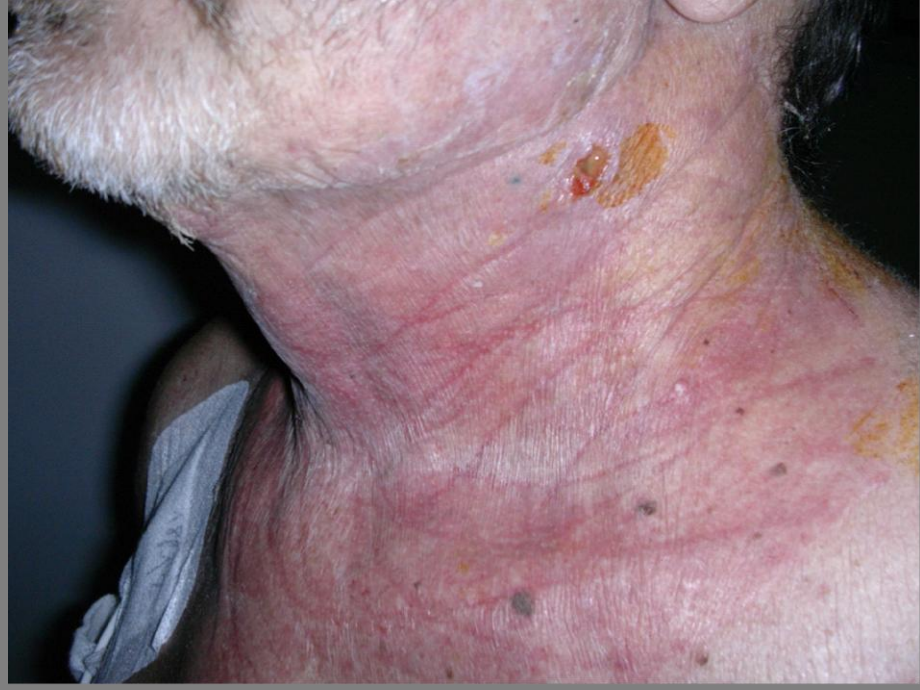
Extrinsic factors
- Dose
- Energy
- Fractionation regimen
- Combination with chemotherapy
  - Doxorubicin, MTX, 5Fu, Hyd, BLM, Taxanes
  - (i.e. those able to induce radiation recall)

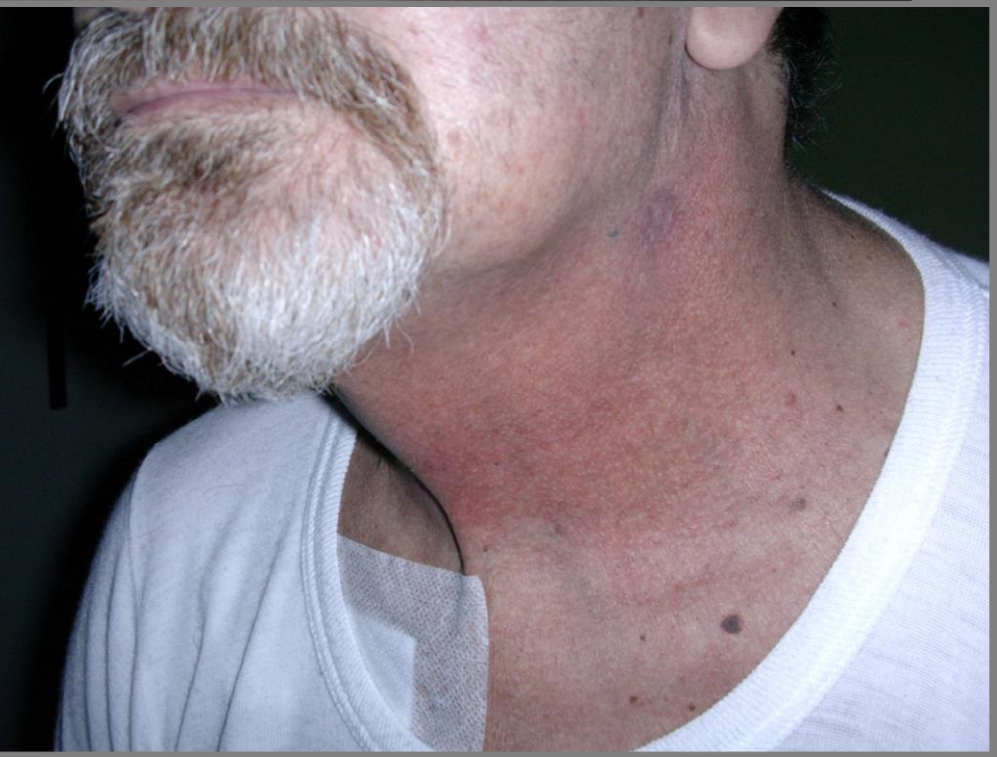
1) Wells M, McBride S: "Radiation skin reactions" in "Supportive care in radiotherapy" Faithfull S and Wells M Eds, pag 135-160; Churchill Livingstone, Edinburgh. Elsevier Science Ltd, 2003

CT- CAE v3.0
Radiotherapy and chemoradiation skin toxicity grading

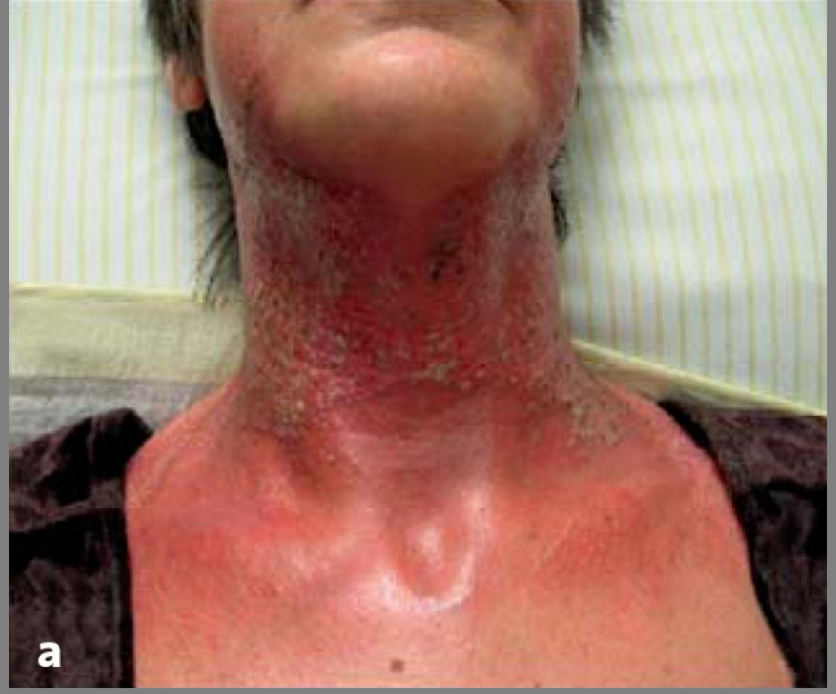
3	4
Moist desquamation other than skin folds and creases; **bleeding induced by minor trauma** or abrasion	**Skin necrosis** or ulceration of **full thickness dermis**; **spontaneous bleeding** from involved site

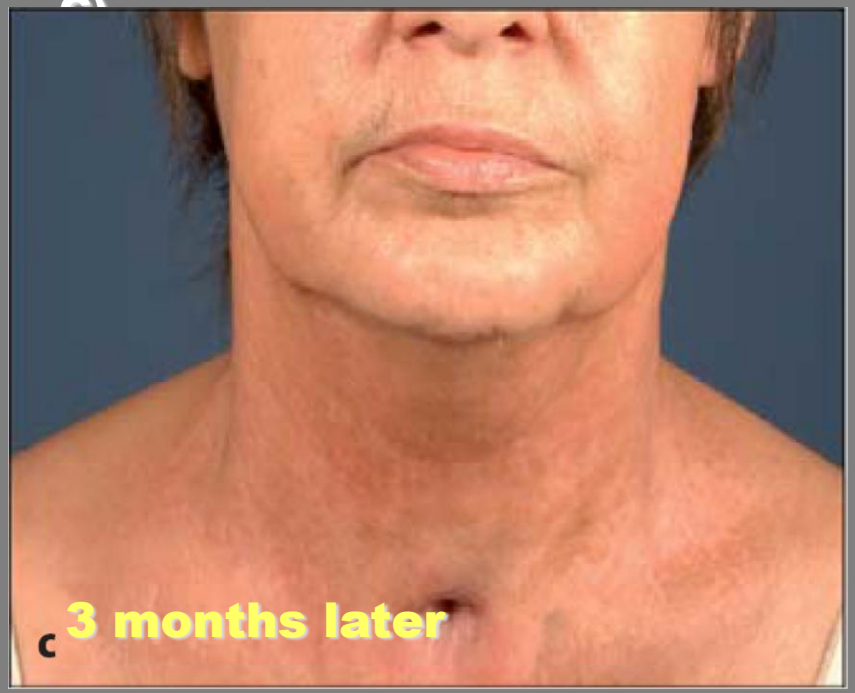






A completely healed skin without disfiguring scars in the damaged area.



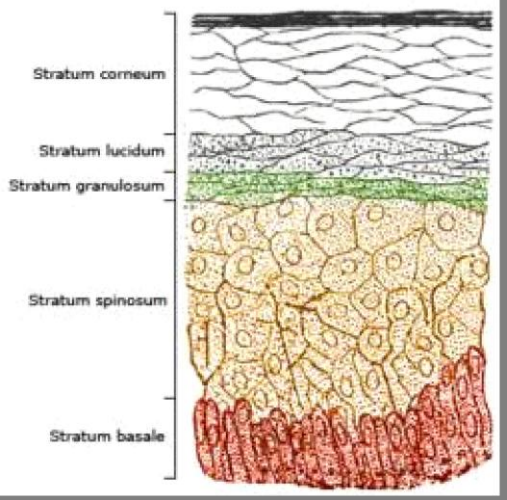


A completely healed skin without disfiguring scars in the damaged area.

Bölke, Budach et al. Strahlenther Onkol 2008;184:105–10

SHOCKING ASPECT AND G 4 SKIN TOXICITY ARE NOT THE SAME

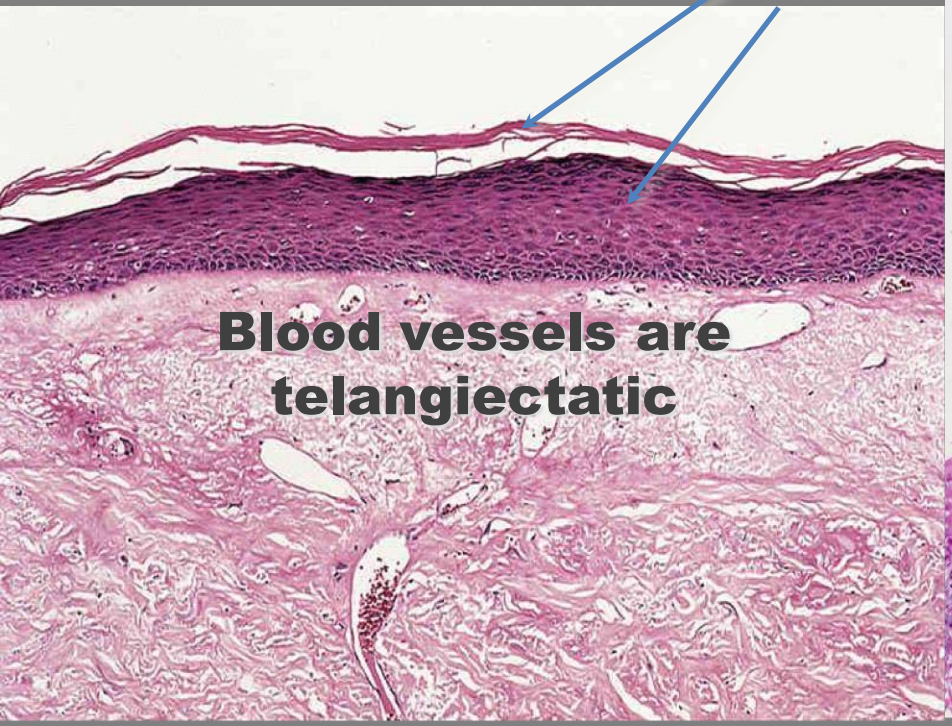
Histopathology



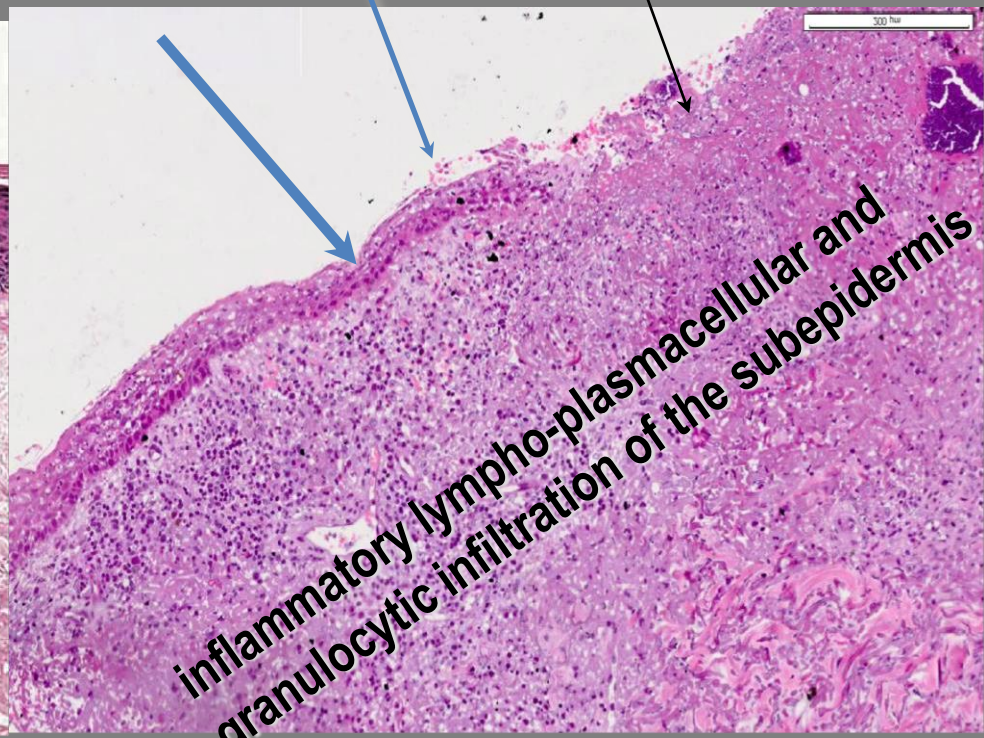
Normal epidermis

Loss of stratum corneum
Thinning of the epidermis

Interruption of the epidermis for limited necrosis of the epidermis

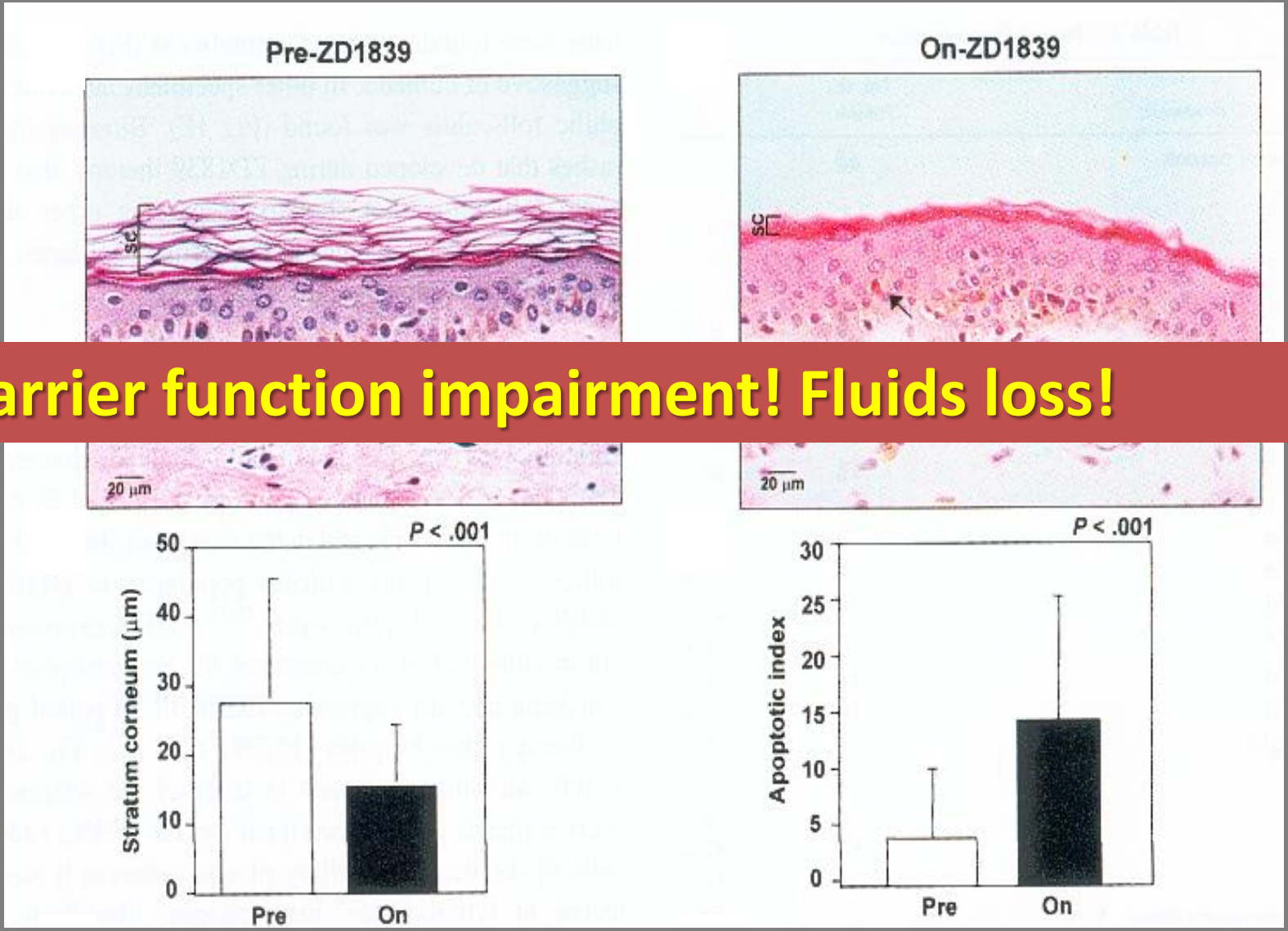


Traditional radio-dermatitis



radio-dermatitis (AlteRCC)

Cellules apoptiques



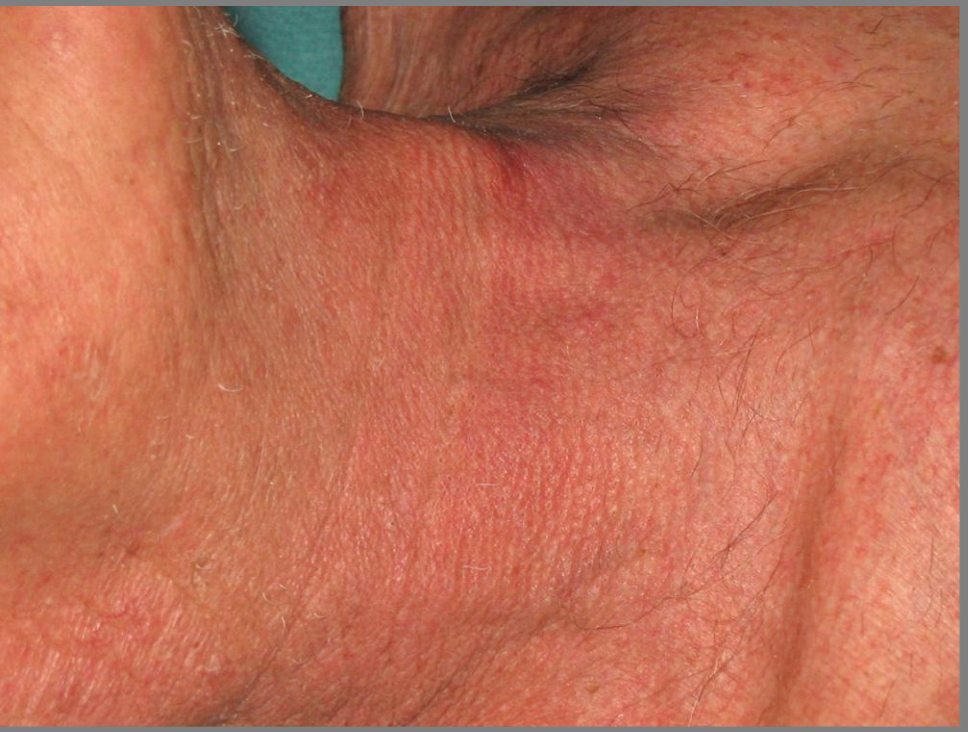
Barrier function impairment! Fluids loss!

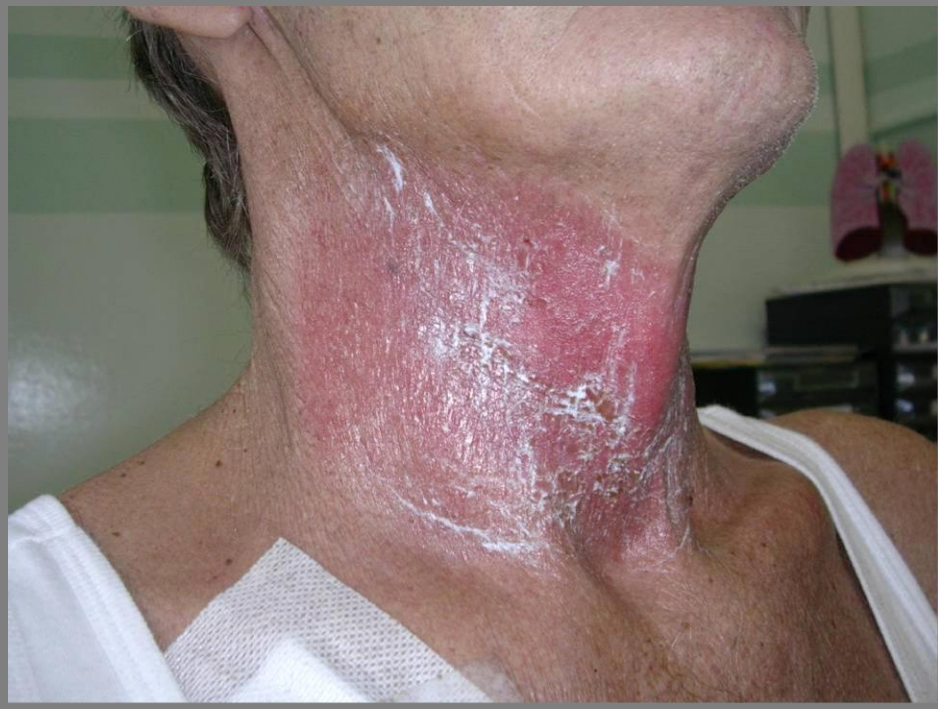
(Albanell, 2002)

MANAGEMENT

Holy Cross Gen Hosp experience

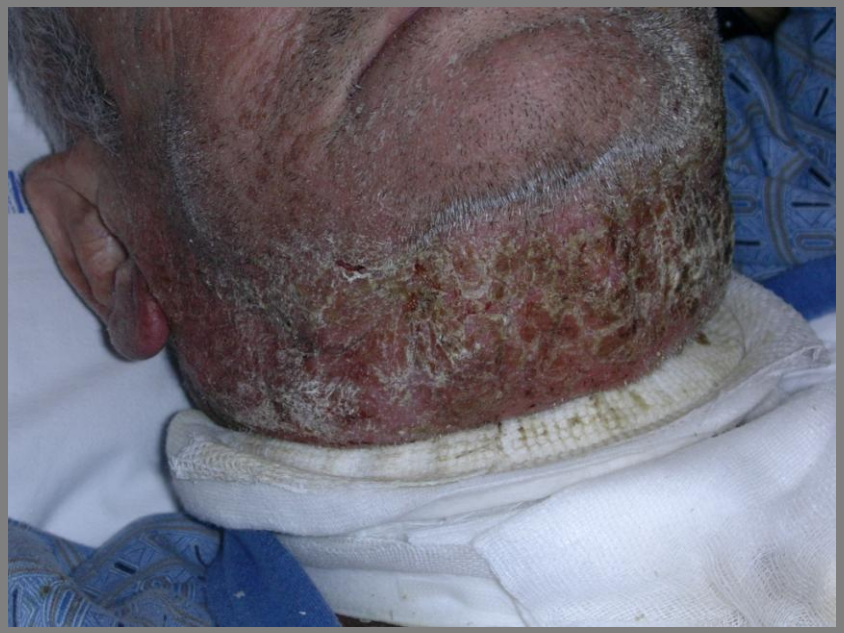
Prevent xerosis and continuous rubbing

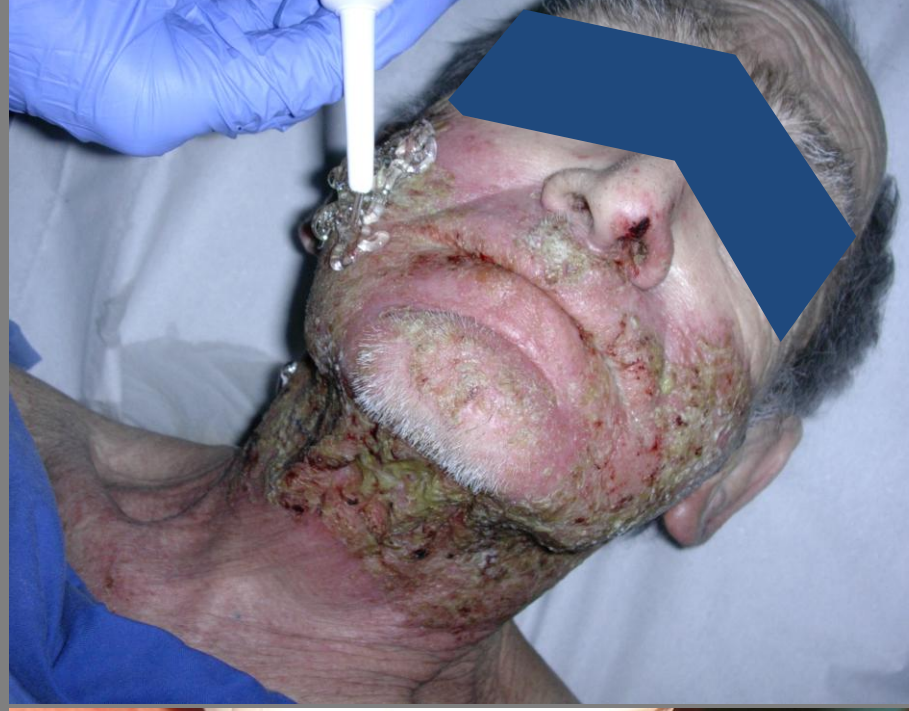


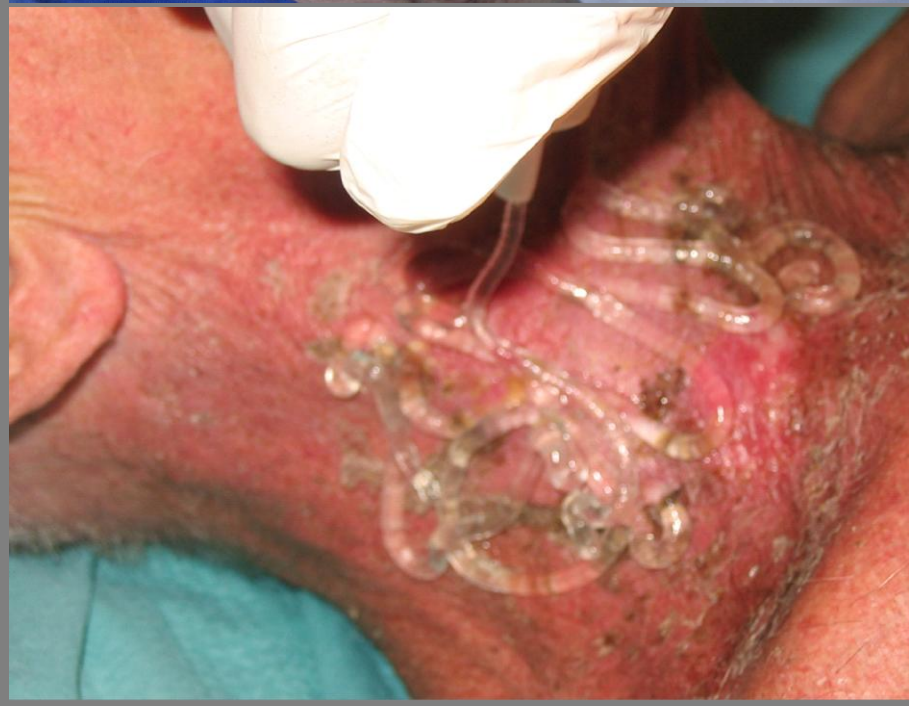


- Since first radiotherapy fractions
  - reduce skin trauma, protecting the neck from continuous rubbing with soft linen or cotton
  - use non-perfumed emollients on the xerotic intact skin

When crusty exudates appear







- Debridement using hydrogel,

Support Care Cancer
DOI 10.1007/s00520-011-1324-4

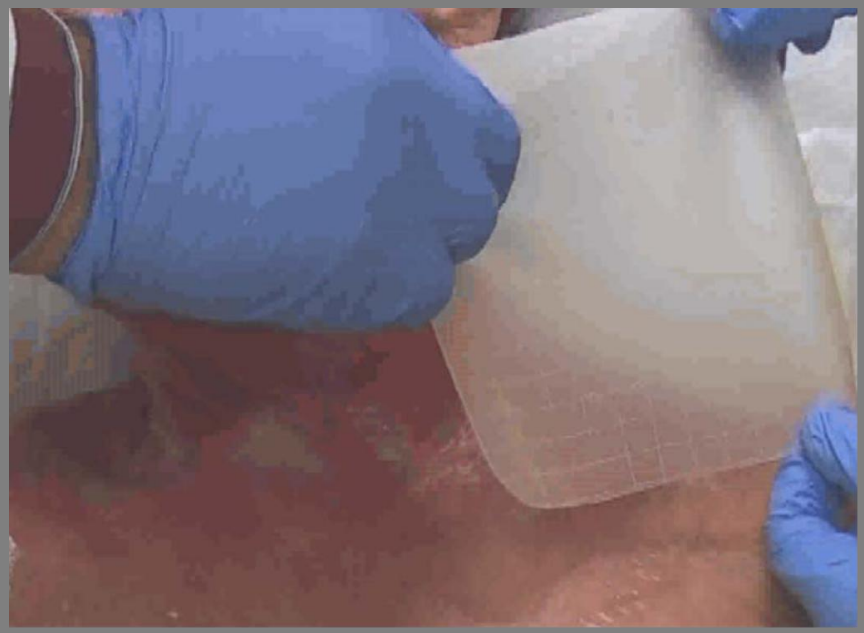
ORIGINAL ARTICLE

The effects on pain and activity of daily living caused by crusted exudation in patients with head and neck cancer treated with cetuximab and radiotherapy

Elvio G. Russi · Marco C. Merlano · Gianmauro Numico · Renzo Corvò · Marco Benasso · Riccardo Vigna-Taglianti · Antonella Melano · Nerina Denaro · Stefano Pergolizzi · Ida Colantonio · Francesco Lucio · Rodolfo Brizio · Umberto Ricardi

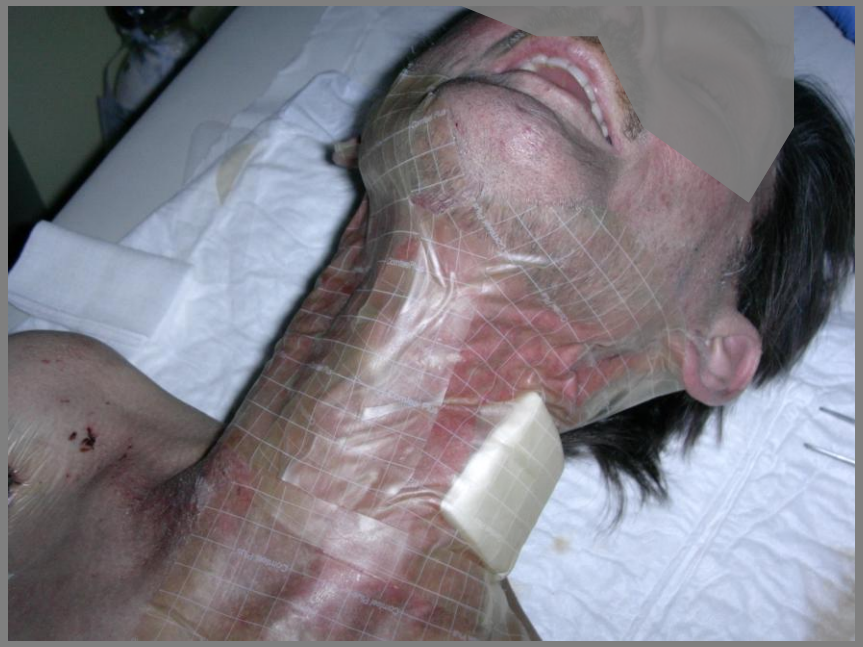
Received: 12 April 2011 / Accepted: 1 November 2011

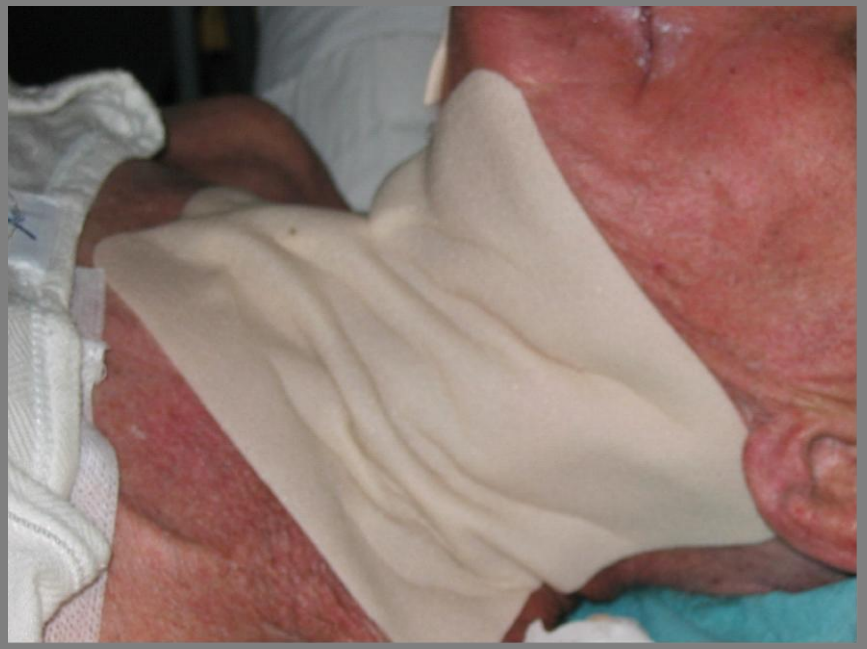
When crusty exudates appear



- …protect injured cutis with Hydrocolloid or Hydrofibers

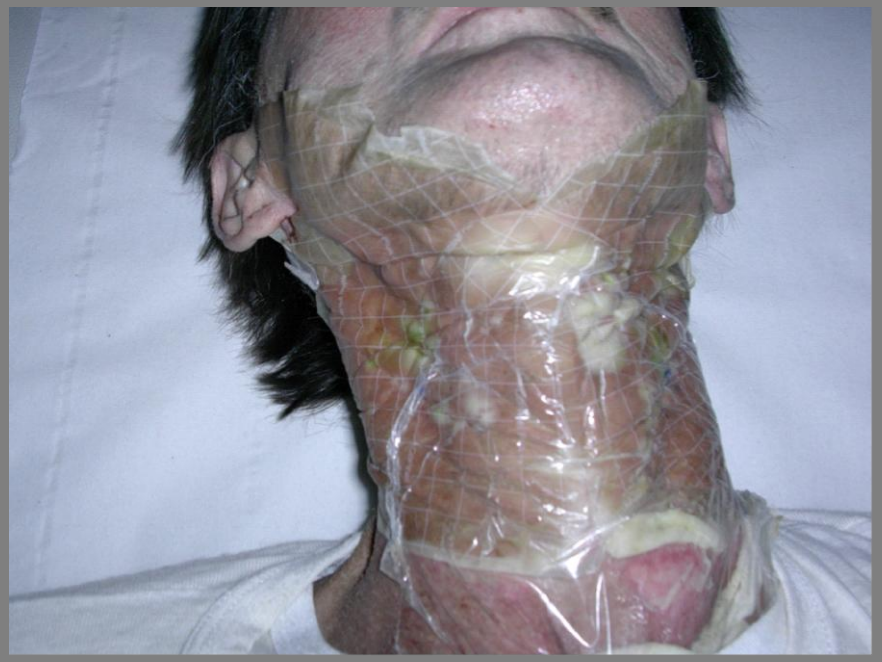
Protect injured cutis with Hydrocolloid or Hydrofibers





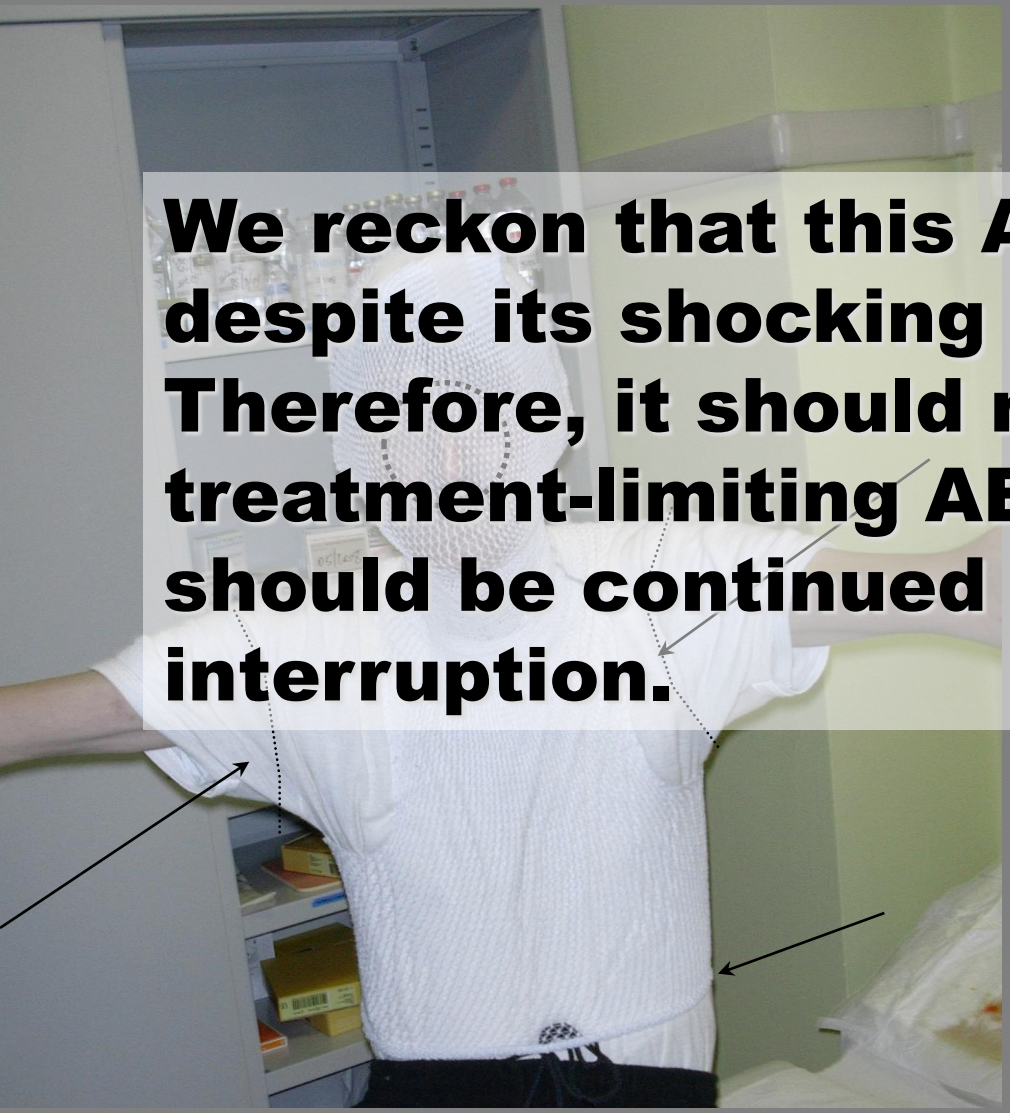
Medications with advanced dressings

- Hydrocolloid
  - carboxymethylcellulose in self-adhesive, biocompatible and hydratable polymeric matrix
- Hydrofibers
  - carboxymethylcellulose



The transformation in gel of carboxymethylcellulose reduces the rubbing and the pain from cutaneous fold movements in the neck.

Avoid the use of patches



We reckon that this AE is manageable, despite its shocking aspect. Therefore, it should not be a treatment-limiting AE and therapies should be continued without interruption.

Thank you