

15P: The combined influence of receptor subtype, grade and TN status on breast cancer survival in recently treated women with non-metastatic disease in Norway

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Conclusion

- Receptor subtype, grade and TN status were strong predictors for breast cancer death, **both independently and in combination**.
- The **combined effect** of all factors was a **20- to 40-fold** higher breast cancer mortality rate when comparing to women with the best outcome
- These results highlight the importance of thoroughly combining well-known tumour factors to describe the wide range of risks of dying from breast cancer.

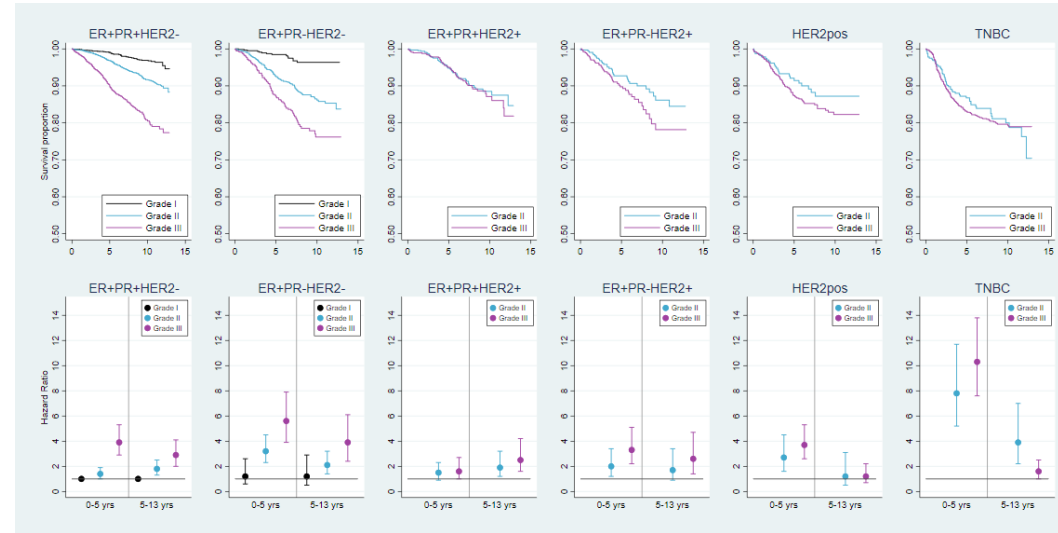
Aim

- To assess the combined impact of receptor subtype, grade and TN status on breast cancer survival
- To quantify at early (<5 years) and late (>5 years) risks of breast cancer death

Methods

- We used population-based cancer registry data from Norway with national coverage and of high quality.
- N=17,204 women** aged 20-74 with a diagnosis of invasive **non-metastatic breast cancer** (ICD-10: C50) in 2005-2015.
- Receptor subtype defined by ER, PR, HER2 status from IHC.
- Death from BC within max. 13 years follow-up.
- Hazard ratios from Flexible Parametric Survival Models, comparing combinations of receptor subtype, grade and TN status with adjustments for age, year and surgery type.
- Survival probabilities estimated by the Kaplan-Meier method.

Estrogen receptor (ER), progesterone receptor (PR), human epidermal growth factor receptor 2 (HER2), immunohistochemistry (IHC), tumour size (T), nodal status (N).



Combined effect of receptor subtype and grade by early/late follow-up

- Grade matters both for early and late follow-up for ER+HER2-subtypes
- ER- subtypes have a high early mortality

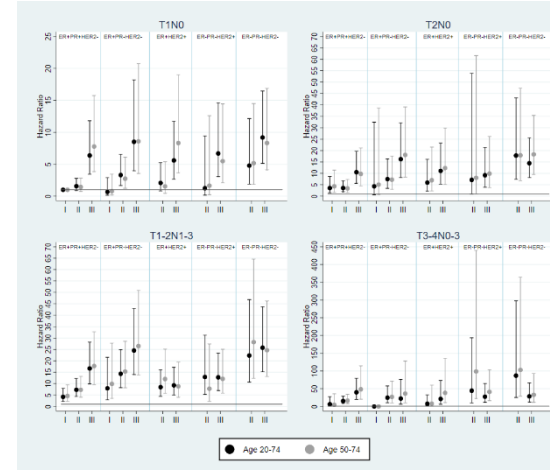
Combined effect of receptor subtype, grade and TN status

Receptor subtype	Grade	N	pT1 pN0 HR [95% CI]	pT2 pN0 HR [95% CI]	pT1-2 pN1-3 HR [95% CI]	pT3-4 pN0-3 HR [95% CI]
ER+PR+HER2-	I	3,345	1.0 [ref]	3.6 [1.5,8.6]	4.2 [2.2,7.9]	6.3 [1.5,27.5]
	II	6,021	1.6 [0.9,2.8]	3.6 [1.9,6.7]	7.3 [4.4,12.2]	15.5 [8.3,28.9]
	III	1,580	6.4 [3.4,11.8]	10.5 [5.6,19.7]	16.7 [9.9,28.2]	39.8 [20.0,79.6]
ER+PR+HER2-	I	563	0.7 [0.2,2.9]	4.3 [0.6,32.5]	7.9 [2.9,21.5]	N/A
	II	1,237	3.3 [1.7,6.6]	7.5 [3.4,16.4]	14.3 [8.2,24.9]	24.8 [10.6,57.9]
	III	624	8.5 [4.0,18.2]	16.2 [8.2,32.2]	24.5 [14.0,42.9]	22.3 [6.5,76.4]
ER+PR+HER2+	II	779	2.1 [0.8,5.3]	6.0 [2.2,16.2]	8.5 [4.4,16.1]	7.6 [1.7,32.8]
	III	793	5.6 [2.7,11.7]	11.1 [5.3,23.3]	9.3 [5.0,17.2]	21.3 [6.2,73.1]
HER2 positive	II	171	1.3 [0.2,9.4]	7.2 [1.0,53.8]	12.9 [5.3,31.2]	44.5 [10.2,193.5]
	III	555	6.7 [3.1,14.6]	9.2 [3.9,21.3]	12.8 [7.0,23.4]	27.6 [11.9,64.4]
TNBC	II	260	4.8 [1.9,12.1]	17.8 [7.4,43.1]	22.3 [10.6,46.8]	86.9 [25.4,297.5]
	III	1,276	9.2 [5.1,16.5]	14.4 [8.2,25.5]	25.8 [15.2,43.7]	28.5 [12.2,66.5]

Hazard ratios adjusted for: age and year of diagnosis, receptor subtype X grade X pTN status interaction, surgery type and follow-up.

- Compared to women with ER+PR+HER2 and low grade tumours, there were wide range of risks of breast cancer death.
- Total effect of all factors was 20- to 40- fold higher breast cancer mortality.
- No differences by age

Combined effect of receptor subtype, grade and TN status by age at diagnosis



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Anna Johansson declares no conflicts of interest.

