

Thyrotoxicosis after iodine fortification. A 21-year Danish population-based study

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Abstract

OBJECTIVE: Monitoring the influence of cautious iodine fortification (IF) on the incidence rate of overt thyrotoxicosis in Denmark with formerly frequent multinodular toxic goitre.

DESIGN: A 21-year (1997-2017) prospective population-based study identified all new cases of overt biochemical thyrotoxicosis in two open cohorts: a Western cohort with moderate iodine deficiency (ID) and an Eastern cohort with mild ID (total n = 533 969 by 1 January 1997). A diagnostic algorithm was applied to all thyroid function tests performed within the study areas. Mandatory IF of salt was initiated in mid-2000 (13 ppm). This study is a part of DanThyr.

RESULTS: The standardized incidence rate (SIR) of thyrotoxicosis at baseline (1997-1998) was 128.5/100.000/year in the cohort with moderate ID and 80.1 in the cohort with mild ID. SIR increased markedly in both cohorts during the initial years of IF (moderate/mild ID: +39/+52% in 2000-2001/2004-2005) and subsequently decreased to baseline level (mild ID) or below (moderate ID) by 2008. The decline was due to a marked decrease in the incidence rate among elderly subjects and a moderate decrease among the middle aged. The follow-up period for the mildly iodine deficient cohort was restricted to 2008. A continuous decline in SIR was observed for the remainder of the study period in the area with moderate ID (33% below baseline in 2016-2017).

CONCLUSION: The rise in thyrotoxicosis incidence with cautious mandatory IF returned to baseline level after 7-8 years and levelled out at 33% below baseline in the population with previously moderate ID after 16-17 years.

Forfatterens kommentar: Formålet med dette populations-baserede studie var at undersøge hvordan incidensen af overt thyrotoksikose udviklede sig efter introduktionen af jodberiget salt i Danmark hos to kohorter med forskelligt præ-eksisterende jodmangel niveau. De 2 kohorter omfatter visse dele af Nordjylland og København, hvor alle nye tilfælde af overt biokemisk thyrotoksikose blev registreret mellem 1997 og 2017 (total n = 533 969 ved 1. januar 1997). Jodberigelsen af salt blev vedtaget ved lov i juli 2000 i et niveau på 13 µg/g. Efter en kortvarig stigning i incidens-raten af thyrotoksikose i begge kohorteområderne (toppunkt mellem 2001-04) kunne man efterfølgende konstatere et kontinuerligt fald i incidens-raterne for begge områder. Den Nordjyske kohorte, hvor incidensen af thyrotoksikose før jodberigelsen var højest, havde ved slutningen af studieperioden (2016-17) opnået et samlet fald på 33% i forhold til incidens-raten før jodberigelsen. Dette fald i incidens-rate var primært drevet af et betydeligt fald i incidensen hos de midaldrende og et særligt stort fald hos de ældre.