A new strategy to optimize iodine intake in Belgium

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A new strategy to optimize iodine intake in Belgium

1. Current iodine status in Belgium
   • Old and new epidemiological data

2. Strategy to optimize iodine intake
   • Progressive
   • Selective
   • Monitored
LIVRE III.

RAPPORTS

ENTRE LES MALADIES

ET

LE SOL, LE CLIMAT, LA MISÈRE, ETC.

Le goître n’offre pas chez nous un haut degré d’endémicité

§ 206. — Goïtres. — Nous n’avons pas de données sur leur fréquence relative dans les diverses parties du pays; cependant il est certain que ces infirmités sont incomparablement plus communes dans la zone méridionale, que dans les deux autres zones.

Ces causes ont été recherchées dans de nombreux travaux, et cependant c’est encore aujourd’hui une question qui est loin d’être résolue. On a tour à tour accusé l’air, le sol, les eaux…

… d’autres ont porté leur attention sur l’absence de l’iode.
Répartition et fréquence du goitre chez les recrues en Belgique

par L. BRULL et L. DEWART
Institut de Clinique et de Polyclinique médicales (Prof. L. Brull)
Incidence of goiter in Belgium as assessed by a network of sentinel general practitioners

P<0.001

Incidence of goiter (100,000)

<table>
<thead>
<tr>
<th>Region</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flanders</td>
<td>72</td>
</tr>
<tr>
<td>Brussels</td>
<td>99</td>
</tr>
<tr>
<td>Wallonia</td>
<td>182</td>
</tr>
</tbody>
</table>

Iodine deficiency a risk factor for goiter?

Answers (%)

<table>
<thead>
<tr>
<th>Answer</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>72</td>
</tr>
<tr>
<td>Don't know</td>
<td>99</td>
</tr>
<tr>
<td>No</td>
<td>182</td>
</tr>
</tbody>
</table>

Scientific Institut of Public Health
IPH/EPI REPORTS N° 2004 - 001
Belgian food consumption survey 2004

70% of the population does not consume the recommended amount of seafood

Daily consumption of seafood

Subjects who almost never consume seafood

Scientific Institut of Public Health
IPH/EPI REPORTS N° 2006 - 014
Prevalence of goiter and median UIC in children

- No difference in the prevalence of G and in the median UIC between the regions
- Nutritional profile of children differs from that of adults
- Child iodine intake ≠ Adult iodine intake
- Child survey ≠ Adult survey
- Monitoring iodine status: children and adults

Delange et al, Eur J Endocrinol 2000
Median urinary iodine concentrations in Belgium

- Children survey
  - 1997: 55 µg/L
  - 2000: 80 µg/L
  - 2006: 68 µg/L

- Adult survey
  - 2000: 68 µg/L

Mild iodine deficiency (MID): 50-99 µg/L

Delange et al, Eur J Endocrinol 1997
Delange et al, Eur J Endocrinol 2000
Moreno-Reyes et al, ETA meeting 2009
Does mild iodine deficiency matter?

Yes

Precautionary principle!

Thyroid nodules and MNG

1. Diagnostic procedures
2. Therapy: medical, surgical or metabolic ($^{131}$I)

Prevents children from attaining their full intellectual potential

MID should be corrected not only in pregnant but also in women of childbearing age
Iodine intake and risk of thyroid diseases

- Brain damage
- Endemic goiter
- Nodules
- Hyperthyroidism
- Brain Impairment ?
- Autoimmune TD
- Hypothyroidism

Median UIC (μg/L)

Iodine intake (μg/d)

68-80
~80
100
199
300
300

Optimal
More than adequate
Excess

SID
MID

ULB
Fortification of bread with iodized salt:
- Consumed by the majority of the population
- Main source of salt: ~2g /d
- Easier to control the I content of one food item
- Easy to implement: local production of bread, little extra cost.
- Iodine losses are negligible
- Success history: Denmark

Fortification of other foodstuffs with iodine should be avoided or tightly regulated

Progressive:
Step-by-step increase of I intake starting with an I content in salt of 10-15 ppm.

Selective:
- Assess efficacy
- Adapt I content in salt
- Maintain optimal I intake

Monitored:
To decrease the risk of hyperthyroidism

Selective:
- Step-by-step increase of I intake starting with an I content in salt of 10-15 ppm.
- To decrease the risk of hyperthyroidism

Selective:
- Fortification of bread with iodized salt:
  - Consumed by the majority of the population
  - Main source of salt: ~2g /d
  - Easier to control the I content of one food item
  - Easy to implement: local production of bread, little extra cost.
  - Iodine losses are negligible
  - Success history: Denmark

Selective:
- Fortification of other foodstuffs with iodine should be avoided or tightly regulated

Selective:
- Assess efficacy
- Adapt I content in salt
- Maintain optimal I intake
Gradual increase of iodine intake in bread

**Step 1: 10-15 ppm I**

- **Bread**: ~26 µg I/d
- **Table salt**: ~13 µg I/d

**Current intake:**

Current intake: 80 µg I/d

**Step 2: 15-20 ppm I**

- **Bread**: ~36 µg I/d
- **Table salt**: I unchanged

Survey 2015:

~120 µg I/d

Survey 2020:

~150 µg I/d
Strategy for optimizing iodine intake in Belgium

- Promotion of iodized table salt on the market
- Fortification of bread with I-salt: 150 µg I/d
- ± Iodine content in salt
- Monitoring UIC in children and pregnant females
- TSH in neonates
- Promotion of I supplements in pregnant and lactating females: 250 µg I/d