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Salt and Stomach Cancer

Introduction

For many years it has been known that there is a relationship between chronic high salt intake and increased risk of gastric cancer. In 2010 there were approximately 7000 newly diagnosed cases of stomach cancer in the UK, a quarter of which (1694) can be attributed to salt.[1] Stomach cancer has a poor prognosis, with the 5 year survival rate being just 15%.[2]

The bacterium *Helicobacter pylori* is the major risk factor for stomach cancer, as it can lead to inflammation and gastric ulcers which can progress into stomach cancer,[3,4] and salt has been found to increase the action of *H. pylori*.[3,6]

Symptoms of stomach cancer may include indigestion, lack of appetite, a feeling of fullness, bleeding, blood in the stools, blood clots, pain and/or sickness.

Who is most at risk of stomach cancer?

Men are at a greater risk of stomach cancer than women. Stomach cancer is most common in the over 55s with less than 8% of cases being diagnosed before this point.[2] People in the most deprived social groups are also at a greater risk.[5] Not all cases involve an infection with *H. pylori*, however those who have the infection are at a greater risk of stomach cancer.

How does salt contribute?

Studies have shown that a chronic *H. pylori* infection is closely associated with salt intake (Fig 1).[6,7,8] Salt has been found to increase the growth and action of *H.* pylori, thus increasing the risk of cancer.[3,6] Salt may also act as an irritant/inflammatory agent of the stomach lining, which can expose it to carcinogens.[9,10]

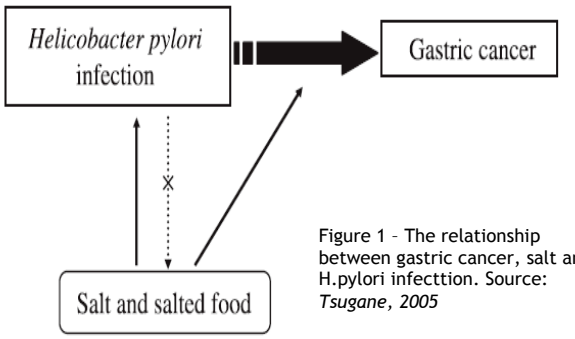

Figure 1 – The relationship between gastric cancer, salt and H.pylori infecttion. Source: *Tsugane, 2005*

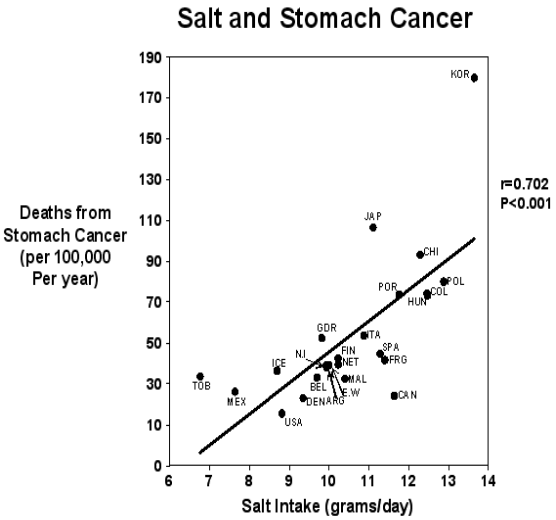

Figure 2 – Deaths from stomach cancer compared to salt intake. Source: *Joosens et al, 1996*

A recent meta-analysis of 7 prospective studies by D'Elia et al, demonstrates a relationship between increasing salt intake and risk of gastric cancer.[11] 270,000 individuals were followed up over 6-15 years and those with high salt intakes had a 68% higher risk of developing gastric cancer than those with low intakes. Similarly, a 2007 meta-analysis of cohort studies found that for every gram of salt intake per day, the risk of developing stomach cancer increased by 8%.[12]

An earlier study looking at deaths from stomach cancer among 39 populations from 24 countries found a significant and direct association between salt intake and stomach cancer deaths (Fig 2).[13] Countries that

have a high salt intake tend to have higher numbers of people dying from stomach cancer, posing a major public health problem for countries with have high salt intakes such as Northern China, Japan and Korea. In Japan, where cancer of the stomach is the most common cancer, a positive correlation between salt intake and stomach cancer incidence in different geographical regions has been found.[8] A higher risk of stomach cancer has been found in people who have a preference for salty food including salt-preserved meat and fish.[14]

A reduction in salt intake may reduce *H. pylori* infection and therefore significantly reduce the risk of developing stomach cancer.[15]

Current Salt Intake & Dietary Advice

Worldwide, almost everyone eats too much salt. In the UK, the daily recommended maximum is no more than 6 grams a day and yet the current average daily salt intake is 8.6g, with many people are eating more than this.

The majority of the salt consumed in the UK comes from processed foods rather than through cooking or at the table. People with, or considered at risk, of stomach cancer should take special care when shopping to ensure that they buy low salt versions of their favourite foods. This can be done by looking at product labels in store. Foods such as cured meat, bread, cheese and table sauces should be eaten in moderation, and no salt should be added during cooking or at the table.

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