Morbid obesity is a serious condition that has grown to worldwide epidemic proportions and certain observers have already considered it to be the “disease of the century”. To contain this illness, people suffering from obesity benefit from a variety of treatments such as diet and medication or, alternatively, weight-loss surgery. SCOR Vie wanted to make a point concerning this pathology for which few statistics are presently available. The medical profession is actively working on producing and updating this information.

SCOR Vie has noted an increasing number of substandard risk files for applicants with measures that “exceed the norm” and now regularly receives pricing requests related to gastric ring surgery. The definition of obesity as a pathological condition, risk appraisal and acceptance limits are some of the challenges that insurers have to face.

SCOR Vie organized a “breakfast-debate” which consisted of medical and insurance experts in this subject. Professor Jean-Marc Catheline, a specialist practising in the Digestive and Obesity Department of the Avicenne teaching hospital in Bobigny in the north-east Paris suburbs, and Doctor Dominique Lannes, a hepato-gastroenterologist and medical director in our risk assessment research unit, presented their analysis and conclusions. You will find in this Newsletter a summary of their comments.

For further details, I invite you to contact your usual SCOR Vie correspondents.

Denis Kessler, Chairman and Chief Executive Officer SCOR and CEO SCOR Vie

Definition of morbid obesity

The Body Mass Index (BMI), a quotient obtained by dividing a person’s weight by their height squared, makes it possible to determine whether they are overweight or not using the following scale:

A common definition of morbid obesity is a BMI greater than 40. For example, a person 1.80m in height who weighs 130kg, or a person 1.60m in height weighing 100kg. It is frequently associated with other serious medical conditions liable to cause premature death. These conditions can include diabetes, cardio-vascular complications (angina, coronary thrombosis, strokes), sleep apnea, and sudden cardiac arrest probably due to coronary thrombosis or irregular heart rhythm. Morbid obesity is also characterized by a higher incidence of all types of cancers.
Morbid obesity in France
The wave of morbid obesity is still in its early stages in France, but it is already starting to build up in our schools among children and adolescents. We currently observe:

- 6% to 11% of French people have a BMI of between 30 and 40,
- 0.2% to 0.5% of the population suffer from morbid obesity with a BMI greater than 40, representing a total of 250,000 to 300,000 individuals,
- with 25,000 cases of morbid obesity, the Seine Saint Denis département is the administrative area most affected by this condition,
- Patients are undergoing surgery at increasingly younger ages with some only in their early 20s.

Morbid obesity in the United States
In the United States where the epidemic has been raging for several years, almost 5% of the population suffers from morbid obesity. The states most affected by this condition are Texas and Missouri where 30% of the population have a BMI of between 30 and 40 and 4% have a BMI greater than 40.

Surgical treatment of obesity
Since the '90s, we know that surgical treatment is the only effective long-term solution for morbid obesity. We are currently observing an increase in the surgical treatment of obesity in France: 12,000 operations to treat obesity per year, putting France in second position worldwide after the United States, where 105,000 operations are carried out annually. Our Spanish, Italian or German neighbours only carry out approximately 6,000 operations per year.

Surgery reduces long-term mortality and morbidity rates in obese patients. Research published in The New England Journal of Medicine in 2004 clearly highlights the fact that the surgical treatment of obesity, and the resulting weight loss, made it possible to reduce long-term morbidity and average periods of hospitalization. Another study shows a reduction in long-term mortality rates. In this research, two groups of obese patients were compared over time: obese patients who received surgery were monitored for 5 years, and obese patients who had not undergone an operation. The results of this study show that the average survival rate is statistically greater among the patients who had an operation.

The medico-surgical treatment of obesity must be carried out in dedicated centres because the surgical techniques are different, and the surgeons and anaesthetists themselves are specialized in treating this pathology. Anaesthesia is more difficult because the kinetics of the drugs used is still unknown in these individuals. The operation tables must be specially designed and more robust (capable of bearing up to 300kg) because individuals requiring surgery are increasingly obese.

The treatment of obesity involves several different disciplines. The surgeon works with nutritionists, endocrinologists, aestheticians, anaesthetists, gastroenterologists, lung specialists, psychologists and psychiatrists. In France, the National Agency for Accreditation and Evaluation in Health (ANAES) requires that the decision to proceed with surgery should be taken jointly by a multidisciplinary group of medical specialists.

To benefit from surgery, obese patients must satisfy the following requirements:

- **Their BMI must be greater than 40.** Patients with a BMI between 35 and 40 cannot receive surgery except in the presence of related serious conditions for which there is no medical treatment. For example, a gastric ring is only fitted to a patient with a BMI of between 35 and 40 if he is obliged to use a machine to treat sleep apnea or suffers from extremely incapacitating diabetes.

- **Their history of obesity must go back at least five years** and be accompanied by the failure of all medical treatment for at least one year. It is vital that patients have already followed a medically monitored diet for at least one year, something that is extremely difficult to appraise and virtually impossible for a surgeon to determine. The expertise of endocrinologists is used to decide whether the patient has followed a sufficient number of diets.

- **Compulsory long-term monitoring:** i.e., there is no question of letting a patient who has received surgery go home without any medical supervision. This difficult long-term monitoring of patients calls for a great
deal of time and availability both on the part of the surgeons and the other medical specialists. It does not always go smoothly in practice.

Generally speaking, surgery is not offered to patients after the age of 65 because the risk becomes too great compared with the expected benefits. What is more, the results are not always satisfactory in elderly subjects because patients must be extremely motivated to lose weight and to change their eating habits, which is rarely the case in more elderly people.

Two surgical techniques are chiefly used in France:

Gastroplasty by the fitting of a peri-gastric band, commonly known as a “gastric ring” (10,000 operations every year in France).

Gastric bypass surgery, or stomach stapling (1,000 operations every year in France).

The gastric ring method is practised in France on patients having a BMI of up to 50. Between 50 and 55, an analysis is carried out to determine which technique is most suited to the individual patient. Beyond this BMI threshold, or in the event of complications or failure of the gastric ring solution (e.g. the ring has slipped out of place), the by-pass technique is used.

Whichever method is used, surgeons have recently adopted laparoscopy, a technique that considerably reduces the length of post-operational effects.

In the USA, virtually all operations use the gastric bypass technique as the gastric ring method only received official approval in 2001.

Both these techniques offer the advantage of improving and extending the lives of people suffering from obesity. But it is not always simple for these patients because each one of these surgical techniques includes a number of risks (see flap).

Morbid obesity and insurance cover

In Scor Vie’s Substandard Risks Department, we have been keeping track of this type of application file since 2000, and we note that the number of cases is increasing every year.

We have observed that morbid obesity is particularly prevalent among individuals of a relatively low economic level because, paradoxically, it is cheaper to eat a high-calorie diet than to eat well and absorb a reasonable amount of calories. Typically, these individuals take out insurance for small sums with limited medical assessment.

One rather special case for insurance companies is that of morbid obesity among individuals working in the “food” industry (restaurant managers, pastry cooks, cooks, butchers, etc.). In a large number of files, the applicants take out a policy with insurance for relatively large sums because they would like to work for themselves and purchase their business. Risk assessment must then be extremely rigorous and considerable care must be taken in pricing.

What are our recommendations for the pricing of morbid obesity?

We do not reject a request for insurance cover simply on the basis of an applicant’s height and weight corresponding to a BMI greater than 40. Between 40 and 45, our pricing for whole-life insurance is slightly higher for a man than for a woman as there are fewer related risk factors. Whenever there are known related conditions – diabetes, coronary thrombosis, sleep apnea, etc. – we consider that the application cannot be priced.

Because it is too soon to establish a position regarding a BMI level greater than 45 – corresponding to a weight of 150kg for a height of 1.80m – we prefer not to commit ourselves to these cases. The same is true for pricing disability or long-term care as soon as the BMI is greater than 40.

And what about obesity treated by gastric ring surgery?

Between 10,000 and 12,000 gastric ring operations are conducted every year in France. Insurance companies will therefore be receiving increasingly large numbers of requests for cover of applicants having already received this ring or wanting to benefit from this surgery in the near future.
When plans have already been made for gastric ring surgery, we prefer to postpone consideration of the application until 6 months after the operation.

When the gastric ring has already been fitted and the operation took place less than two years before, we know that the applicant’s BMI has not yet stabilized and that there is an increased risk of complications - a shift in the position of the ring, in particular. Our pricing method will take account of the applicant’s current BMI and the BMI noted before the ring was fitted. We offer to review the file two years later when the BMI has stabilized.

When the operation took place more than two years before the request for insurance, and provided the applicant’s weight has stabilized and there is no increased risk of complications, we price the contract on the basis of the current BMI while applying a weighting coefficient on the basis of the pre-surgery BMI. Late complications, just as a gain in weight, are always possible. We therefore prefer to adopt a rather prudent approach to pricing. After 5 years of a stable BMI, we can reduce our pricing in the absence of any complications or related medical conditions.

To date, we have not studied many insurance application files for individuals having undergone gastric bypass surgery but insurance companies will probably receive such application files in the future.

Statistics worth monitoring closely

European insurance companies will be particularly well advised to monitor risks related to morbid obesity in the place where there is the highest incidence of this disease. We must closely observe what is happening in the United States without, however, blindly following what we observe in that country considering the intense competition in the U.S.market. The mortality statistics for individuals suffering from morbid obesity will nevertheless be our first clue to guide us in our risk analysis.

We must also closely monitor developments in China and India. In China, statistical research will rapidly give eloquent results because... 1% of obesity represents a total of 10 million individuals!

In France, therefore, we will be in a position to know how the “morbid obesity” risk develops by analyzing what is happening in other countries. Our colleagues in North America keep us regularly updated in this respect.

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SCOR Vie and morbid obesity

The teams working for SCOR Vie base their internationally recognized expertise in risk assessment on experience derived from a large number of insurance application files scrutinized on a daily basis.

We have drawn up a specific medical questionnaire entitled “morbid obesity or surgical treatment of obesity”. Whenever a case of morbid obesity is encountered, we recommend the use of this questionnaire. We ask a doctor to check the weight and height of the applicant. The questions focus on cardiovascular complications, diabetes, sleep apnea or plans for gastric ring surgery, etc. Thanks to this document, we will be able to price our contracts as efficiently as possible.

We are considering examining the possibility of extending our pricing to BMI of between 45 and 50.

Our customers enjoying access to Sar@, our substandard risk assessment tool, can learn the details of our position there.
Gastroplasty by the fitting of a peri-gastric band, or “gastric ring”

The ring is attached to a box under the skin making it possible to inflate or deflate the ring in order to reduce (or expand) the size of the band. If the patient does not lose sufficient weight, the ring is tightened up; if the patient is unable to eat, the ring is loosened.

Initial research devoted to gastric ring surgery was only published in 1994. This means that we do not have sufficient perspective to judge the long-term effects of this solution. What we do know, however, is that this method is generally less effective than the bypass technique, that gastric ring surgery is relatively ineffective on super-obese individuals and that patients’ weight only stabilizes after a period of 24 months.

However, it does make it possible to reduce obesity by 45% one year after the ring has been fitted.

The principal complications related to gastric ring surgery

- Immediate mortality: 0.14% (certain research gives figures as high as 1.5%),
- Precocious morbidity: 4.2%,
- Immediate slipping of the ring: 2%,
- A few cases of phlebitis,
- Gastric perforation: 0.3%,
- Relative large number of respiratory complications,
- 8% of the patients required further surgery (including 4% of serious complications),
- Pocket dilation: 6.3% to 15% may require the removal of the ring,
- Dilatation of the oesophagus,
- Problems with the box (disconnection, very frequent but not serious),
- Gastric erosion: 1.6% of the rings move spontaneously in the stomach,
- Nutritional complications: no data at present.
The rates of immediate death and morbidity are twice as high as gastric ring surgery. As a result, this technique is only used in France on patients with a BMI greater than 50 and/or after failure using gastric ring surgery.

- Risk of death: 1% to 5%, the risk depends on the patient’s BMI,
- Precocious morbidity: twice as frequent than gastric ring surgery,
- Pulmonary embolism: 0.7%,
- Blockage: 3% (or even 5%),
- Stenosis: 8%,
- Further surgery: 8%,
- Pneumopathy,
- Problems related to nutritional deficiency.

An average reduction of 70% of excess weight is observed after 1 year. Gastric bypass surgery is the most efficient long-term solution.