BMI低値はPCI後の予後不良につながる (Poster Session, Abstract P492)

低体重は心臓カテーテル治療後の死亡率および医療費の高値に関連する

Underweight associated with highest mortality and costs after cardiac catheterization

心臓カテーテル治療を施行された患者のうち、低体重患者は死亡率、医療費、入院期間、および再入院率が最大であるが、過体重患者ではそうではない、と100万人超の患者を対象にした解析の結果が、2017 ESC Congress で発表された。低体重患者の入院期間は標準体重患者に比べ2倍以上であり(10.5日対 5.1 日)、その結果、医療費が50% 近く高かった。合併症で補正した結果、低体重患者は標準体重患者に比べ 30日以内の再入院が18% 多く(p<0.007)、病的肥満患者では 30日以内の再入院が8.2% 少なかった(p<0.001)。過体重および肥満患者は、再入院率が最も低かった。

Full Text

Being underweight, and not overweight, has the highest mortality, cost, length of stay, and readmission rate for those undergoing cardiac catheterization, according to an analysis of more than one million patients presented at the 2017 ESC Congress.

"Elevated body mass index (BMI) is a risk factor for coronary artery disease, yet studies have shown that overweight and obese patients actually have fewer complications and better clinical outcomes after revascularization using percutaneous coronary intervention (PCI) – a phenomenon dubbed the obesity paradox," said lead author Dr. Afnan Tariq, an interventional cardiology fellow, Lenox Hill Hospital, New York, USA.

This study examined the association of BMI with in-hospital mortality, cost of care, length of stay, and rate of readmission within 30 days in patients undergoing cardiac catheterization in 2013 in a nationally representative cohort.

Researchers used the National Readmission Database and Nationwide Inpatient Sample Database to retrospectively analyze discharge and readmission data. These are the largest all payer USA inpatient databases and include more than 35 million hospitalizations annually.

In 2013, 1,035,727 patients underwent cardiac catheterization, of which 42% also received PCI with a stent or balloon. When categorized by BMI, 0.4% of patients were underweight (BMI<19 kg/m2), while 11.4% were obese (BMI 30.1–40 kg/m2) and 8.0% were morbidly obese (BMI over 40 kg/m2). Of those undergoing cardiac catheterization, only 25.8% of the underweight patients went on to receive PCI, while 32.5% of the morbidly obese, 41% of the overweight, 41% of the obese, and 43.2% of the normal weight categories went on to have a balloon or stent (PCI) placed for coronary blockages (adjusted for comorbidities: all values p<0.001).

Despite the low percentage of cardiac catheterizations and lower rate of PCI compared to normal and overweight BMI groups, underweight patients were over three times more likely to die after cardiac catheterization than morbidly obese patients and five times more likely to die than obese patients (6.0% mortality for underweight patients, 2.3% normal weight, 1.7% overweight, 1.2% obese, 1.9% morbidly obese, all values adjusted for comorbidities: p<0.001). Interestingly, despite the extreme BMI, morbidly obese patients had a lower mortality rate than normal weight patients and obese patients had the lowest mortality of all groups undergoing cardiac catheterization.

Length of stay for underweight patients was more than double that of normal weight patients (10.5 days versus 5.1 days) resulting in nearly 50% higher costs for underweight patients ($USD 33 540 versus $USD 22 581). Morbidly obese patients had a slightly longer length of stay and higher costs compared to normal weight patients (6.2 days, p<0.01 and $USD 23 889, p<0.01).

After adjustment for comorbidities, underweight patients were 18% more likely than normal weight patients to be readmitted within 30 days (p<0.007), while morbidly obese patients were 8.2% less likely to be readmitted within 30 days (p<0.001). Overweight and obese patients had the lowest readmission rates, and were over 10% less likely to be readmitted than normal weight patients within 30 days.

Dr. Tariq said: "The obesity paradox has flummoxed researchers for some time, and our research also flips the conventional wisdom that a higher BMI should portend a worse outcome. We found that the lower BMI group had worse outcomes across the board, including readmission, length of stay, cost, and mortality."

"Furthermore, using the largest all payer publicly available database in the USA, we observe that obese and morbidly obese patients receive stents or balloons at a lower rate than normal weight patients, are less likely to be readmitted within 30 days, and have lower mortality than normal weight patients undergoing cardiac catheterization," he continued.

Dr. Tariq concluded: "Further research will certainly add to the growing body of evidence, but the scales seem to be tipping in favor of higher BMI patients having better outcomes than normal weight patients. This study also reinforces the notion that the frail, those with the lowest BMI, have the worst outcomes - suggesting that when it comes to cardiac catheterization, the smaller they are, the harder they fall."

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Conference News